A STUDY OF HAPPINESS, HOPE AND HEALTH BEHAVIOUR AMONG CORONARY ARTERY DISEASE (CAD) AND CANCER PATIENTS

ABSTRACT

THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

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IN

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BY

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ABSTRACT

The present investigation was explored to examine *"A Study of Happiness, Hope and Health Behaviour among Coronary Artery Disease (CAD) and Cancer Patients."* **Cancer** is an umbrella term for more than 100 different but related diseases. Cancer occurs when cells become abnormal and keep dividing and forming more cells without any internal control or order. Normally cells divide to produce more when the body needs them to remain healthy. However, if cells keep dividing when new cells are not needed, a mass of extra tissue known as tumour or neoplasm forms, which can be benign or malignant. Benign tumours are not cancerous and usually can be removed and when removed in most cases do notre-form.in the case of malignant tumours, cancer cells can invade and damage nearby tissues and organs. They can also break away and form a malignant tumour and enter the blood stream or the lymphatic system forming new tumours or metastasis in other parts of the body.

Coronary Artery Disease (CAD) is a condition in which plaque (plak) builds up inside the coronary arteries. These arteries supply our heart muscle with oxygen-rich blood. WHO (1982) defines the CAD as "an impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart." Coronary artery disease is our "modern epidemic" i.e. a disease that affects population and not an unavoidable attribute of ageing. Though, there are many types of CAD but, the main four types that have been taken in the present study are Angina Pectoris, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia.

Research has found that psychosocial interventions may not only help the patients to reduce the stress but may also prolong survival in patients with CAD and

Cancer. People suffering from such life threatening diseases may often be upset and depressed.

Positive thinking of love, courage, optimism, purpose in life, **Hope** and Happiness not only add years to one's life but also add life to one's years. Hope can be passive in the sense of a wish or active as a plan or idea, often against popular belief, with persistent personal action to execute the plan or prove the idea. Positive emotions, feelings and a positive mental attitude can improve the quality of people's lives and heal their bodies of illness and stresses (Wong, 1989). **Happiness** is a state of mind or feeling characterized by contentment, love, satisfaction, pleasure, or joy. Positive feelings of Happiness and Hope are protective in developing serious ailments and are beneficial in treating serious medical illnesses such as Cancer (Irving, Snyder and Crowson, 1998). Hope's importance to Health Care is linked with an increased quality of life (Farran, 1990) less use of health care resources (Herth, 1995) and better health outcomes (Owen, 1989).

Health behaviour is defined as an action taken by a person to maintain, attain or regain good health and to prevent illness. Health behaviour reflects a person's health beliefs. Some common health behaviours are exercising regularly, eating a balanced diet, and obtaining necessary inoculations. (Mosby's Medical Dictionary).

Research Objectives

The present research is systematically designed in accordance with the following main research objectives:

1. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Happiness.
2. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Happiness.

3. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Happiness.

4. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on happiness.

5. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on happiness?

6. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Hope.

7. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on *Agency thoughts* and *Pathways* factors of Hope Scale.

8. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on *hope*, and *agency thought* and *pathways* factors of hope.

9. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on *hope*, and *agency thought* and *pathways* factors of hope.

10. To examine the main effect of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Health behaviour.

11. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on *Health Consciousness* and *Health Carelessness* factors of Health Behaviour.

12. To examine the main effects of gender (male and female), stages of Cancer (I, II, III, IV) and the interaction between gender and stages of cancer on overall scores of Hope.

13. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on *Agency thoughts* and *Pathways* factors of Hope.

14. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Health Behaviour.

15. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on *Health Consciousness* and *Health Carelessness* factors of Health Behaviour.

16. To examine the main effects of gender (male and female) types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on overall scores of Hope.

17. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on *Agency thoughts* and *Pathways* factors of Hope.

18. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Health behaviour.

19. To examine the main effects of gender (male and female), Types of coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and

Cardiac Arrhythmia) and the interaction between them gender and types of CAD on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

20. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

21. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

The present study consisted of 400 patients. Of these, 200 were Coronary Artery Disease (CAD) patients and 200 Cancer patients. Patients were drawn from the Out Door Patients (OPD) of the Chhatrapati Shahuji Maharaj Medical University, Lucknow Cancer Institute, Nishat Hospital Lucknow, (U.P. INDIA) and Jawahar Lal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh (U.P. INDIA). The sample was divided in terms of the variable of gender, i.e., males and females. The age range of the patients was from 25-70 years. Under the cancer group, there were 100 males and 100 females. The sample was further divided on the basis of different stages of cancer (Stages I, II, III, IV). There were 25 males and 25 females in each group.

The Coronary Artery Disease (CAD) group consisted of 100 males and 100 females. The sample was further split on the basis of the different types of Coronary Artery Disease i.e. Angina Pectoris, Myocardial Infarction, Cardiac Arrhythmia and Congestive Heart Failure. There were 25 males and 25 females in each group.

In the present study, three scales were used namely, Adult Hope Scale, Affectometer-2 and Health Care Behaviour Scale:

Adult Hope Scale

The Adult Hope Scale developed by C.R. Snyder et al. (1991) was used to measure the disposition of hope among cancer and coronary artery disease patients. The scale consists of eight hope items plus four fillers. The subjects have to rate their responses on a 4-point Likert scale or 8-point Likert scale on a continuum of definitely false (1) to definitely true (4 or 8). There are two domains, the agency and the pathways. Four (4) items reflect the agency, and four (4) items reflect the pathways, the remaining 4 items are fillers. Hope is calculated by taking the sum of the 4 pathways and 4 agency items. The 4 filler items are not used for scoring. Total possible score is 48. For the total scale Cronbach's alpha's ranged from .74 to .84. For the agency subscale, alpha = 0.71 – 0.76, for the pathway subscale, alpha =0.63 – 0.8. The Adult Hope Scale possesses acceptable internal consistency and temporal stability.

Affectometer-2

Affectometer-2 was developed by Kamman and Flett (1983). It consists of 40 items – 20 positive and 20 negative, half presented as sentences and half as adjectives. Respondents rate how well the items apply to themselves on a five point Likert scale ranging from 'not at all' to 'all of the time'. Responses to negative items are summed and subtracted from the sum of positive items, reflecting the scale's underlying theoretical principle that mental health status is determined by the degree to which positive feelings and attributes outweigh negative ones. Test-retest reliability of the scale was found to be 0.80 while a coefficient of alpha of 0.95 is reported with a median item total correlation of 0.57.

Health Care Scale

Health Care behaviour was measured by Health Care scale developed by Adhami and Kureshi (1992). The scale consisted of a list of 30 items, 15 were representative of health consciousness and 15 of health carelessness. Each item has five response categories, ranging from 'strongly agree' to 'strongly disagree' with intermediate columns as 'moderately agree' to 'strongly disagree'. The listed items were placed in random order to avoid any guessing on the part of the subjects.

Prior to data collection, the investigator explained the purpose of the study to the subjects. Three scales along with the personal data sheet were administered to cancer and coronary artery disease (CAD) patients. The investigator established rapport with the respondents (patients) and assured them that their responses would be kept strictly confidential and would be utilized for the research purpose only. After establishing rapport with the respondents, the data were collected individually according to their convenience.

Data were analyzed by using statistical package for Social Sciences (SPSS) version 16.0. In order to answer research questions, the present investigator had adopted analysis of Variance (two-way ANOVA) in which 2x2 and 2x4 research designs were made to do proper analysis. Scheffe test was also used for examining mean differences between cancer patients of different stages and types of CAD patients.

The main findings of the present study led to the following conclusions:

- Significant F-ratio was found for the types of disease ($F=13.380$, $p<0.01$) on happiness.
- Significant F-ratios were found for gender of patients ($F=5.141$, $p<0.05$) and degrees of cancer ($F=17.927$, $p<0.01$) on happiness.

- Scheffe test showed that there were significant differences between stage 1 and stage 4, stage 2 and stage 4, and stage 3 and stage 4 cancer patients on happiness.
- Significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on Happiness.
- Significant F-ratio were found for gender of patients ($F=8.845$, $p<0.05$), effects of types of disease ($F=71.356$, $p<0.01$) and their interaction effects ($F=15.748$, $p<0.01$) on hope.
- Significant F-ratios were found for gender of patients ($F=4.238$, $p<0.05$), types of disease ($F=57.803$, $p<0.01$) and their interaction effects ($F=6.719$, $p<0.01$) on agency thought.
- Significant F-ratios were found for gender of patients ($F=9.351$, $p<0.01$), types of diseases ($F=45.174$, $p<0.01$) and their interaction effects ($F=18.081$, $p<0.01$) on pathways.
- Significant F-ratio was found for gender of patients on hope ($F=34.384$, $p<0.01$).
- The main effect of degrees of cancer ($F=140.385$, $P<0.01$) and the interaction effect between gender and cancer ($F=42.591$, $P<0.01$) were found significant on hope.
- Significant F-ratios were found for degrees of cancer ($F=76.091$, $p<0.01$) and the interaction effect ($F=24.230$, $p>0.05$) on agency thoughts.
- Significant F-ratios were found for degrees of cancer ($F=63.099$, $P<0.01$) and the interaction effect ($F=18.151$, $p<0.01$) on pathways.

- Significant F-ratios were found for gender of patients ($F=13.394$, $p<0.01$), types of CAD ($F=2.570$, $p<0.05$) and their interaction effect ($F=2.804=$, $p<0.05$) on agency thoughts.
- Significant F-ratio was found for gender of patients ($F=32.529$, $p<0.01$) on pathways.
- Scheffe test showed that significant differences were between stage 1 and stage 3, stage 1 and stage 4, and stage 2 and stage 3, stage 2 and 4, and stage 3 and 4 cancer patients on *hope*, and *agency thought* and *pathways* factors of hope.
- Significant interaction effect was found between gender and types of disease ($F=23.051$, $p<0.01$) on health behaviour.
- Significant F-ratios were found for types of disease ($F=18.151$, $P<0.01$) and the interaction effect between gender and disease ($F=4.652$, $P<0.05$) on health consciousness.
- Significant F-ratio was found for interaction between gender and types of disease ($F=25.227$, $p<0.01$) on health carelessness.
- Significant F-ratios were found for gender of patients ($F=14.500$, $p<0.01$) and degrees of cancer ($F=5.022$, $p<0.01$) on health behaviour.
- The main effect for degrees of cancer ($F=4.334$, $p<0.01$) and the interaction effect ($F=3.239$, $p<0.01$) were found to be significant on health consciousness.
- Significant F-ratio was found for gender of patients on health carelessness ($F=13.312$, $P<0.01$).
- Significant F-ratios were found for gender of patients ($F=10.056$, $p<0.01$) and types of CAD ($F=3.736$, $p<0.01$) on health behaviour.

- F-ratio was found significant for types of CAD ($F=2.913$, $p<0.05$) on health consciousness.
- Significant F-ratio was found for gender of patients ($F=12.067$, $p<0.01$) on health carelessness.
- Scheffe test showed that significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on health behaviour, *consciousness* and *carelessness* factors of health behaviour.

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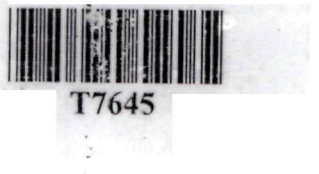
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Date. 18.01.2011

Certificate

This is to certify that **Miss Mahvish Fatima** has carried out her research work entitled **"A Study of Happiness, Hope and Health Behaviour among Coronary Artery Disease (CAD) and Cancer Patients"** under the supervision of the undersigned.

The research work is an original piece of work and quite fit for submission to the examiner for the evaluation of Ph.D thesis.

Dr. Mohd. Ilyas Khan
(Supervisor)

Dedicated to

My Beloved **PARENTS**

(Late) Mr. A. M. Siddiqui

And

Mrs. Asmat Siddiqui

Acknowledgements

"Whatever can be said can be said clearly, where of one cannot speak thereof one ought remain silent"

(Ludwig Wittgenstein)

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As I step out is this world I feel armed and assured to take on the battle of life. I learned a lot during the course of my Ph.D. and I am convinced that this knowledge will help me in serving the mankind.

Makvish 18/1/11

(Makvish Fatima)

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Introduction

Chapter One

INTRODUCTION

1.1. Background of the Study

It is being increasingly realized that the well-being of a person cannot be conceived in exclusively dichotomized categories of physical and psychological health, without an integrated and holistic understanding of all the levels of human functioning the picture is vague and lopsided. Although the role of psychological factors in the development of physical diseases have been highlighted for a long time but real attention has been paid in recent times. Medical practitioners are accepting and appreciating the role of psychological and emotional factors in the manifestation of what was earlier considered a purely somatic disease. The area of health psychology has thus emerged highlighting an approach which integrates the psychological and organic viewpoints to the study of physical disorders. Thus more work on psychological correlates of diseases like coronary artery disease (CAD), peptic ulcers, cancer, diabetes etc. need to be conducted. The present chapter focuses on the levels of Happiness, Hope and Health Behaviour among Coronary Artery Disease and Cancer patients.

Appreciation of the relationship between psychological factors and physical disease is not very new. Psychosomatic medicine goes back to ancient times. In 2000 AD the Greek philosopher and physician Galen estimated that about 60% of his patients symptoms were derived from emotions rather than organic origin. Thomas Sydenham and William Harvey emphasized the role of psychological factors in physical disorders in the 17th century (Taylor 1980).

Explanation at the psychological level has been presented by psychoanalysts as well as learning theorists. The psychoanalytic view point has been given by Alexander (1950). According to Alexander, various psychosomatic disorders are products of unconscious emotional states specific to each disorder for e.g. Alexander assumed that ulcer patients have repressed their longing for parental love in childhood, and that this repressed impulse causes the over activity of the stomach leading to ulcers. Physiologically, the stomach is continuously preparing to receive food, which the person has symbolically equated with parental love.

Undischarged hostile impulses are viewed as creating the chronic emotional state responsible for essential hypertension. Alexander thought that essential hypertension is caused by unexpressed anger or anger-in. The interdisciplinary approach to the treatment of physical disorders thought to have psychological factors as a major aspect of their causal patterns, broadly known as behavioral medicine (Gentry, 1984), is fast gaining popularity. The field includes professionals from many disciplines including medicine, psychology and sociology – who seek to incorporate biological, psychological and socio-cultural factors into the total picture. Its emphasis however is essentially on the role which psychological factors play in the occurrence, maintenance and prevention of physical illness. Therefore, it is only natural that psychologists have found this an area of major interest and as a consequence, an area referred as Health psychology has emerged. Health psychology is a sub-specialty within the behavioral medicine approach. Since the 1970s behavioral medicine and health psychology have highlighted the role of psychological factors in all facets of health and illness. Beyond studying the etiological role that psychological factors can play in illness, researchers in these fields study

psychological treatments (e.g. biofeedback for migraine headache) the maintenance and promotion of healthful behaviors (e.g. dietary change to reduce cholesterol intake and thus lessen the risk of heart attack) and the healthcare system itself (e.g. how to better deliver services to unserved populations) (Schwartz & Weiss, 1977, Stone 1982). A substantial body of research now indicates that Hope and similar dispositions (e.g. Optimism & Happiness) are associated with psychological and physical well-being (Farran, Herth & Popovich, 1995). It is therefore not surprising that a lot of attention is being focused by psychologists in this area.

1.2. Statement of the Problem

The topic of the present study is: "*A study of Happiness, Hope, and Health Behaviour among Coronary Artery Disease (CAD) and Cancer patients*".

Cancer and CAD are the major health problems throughout the world. India has the highest rate of cancer in the world. Data from population based registries under National Cancer Registry programme indicates that over 3 lakhs deaths occur annually due to cancer (NCRP 2002). It is estimated that by the year 2015, CAD will be the largest cause of disability and death in India. Six million people have coronary artery disease and five million rheumatic heart diseases (WHO 2003). Premature mortality among Indians is posing serious challenges to the economy. People suffering from such life threatening diseases may often be upset and depressed. Cancer specific distress has been recognized on a diagnostic level since 1994 when cancer diagnosis was listed as a potential traumatic event in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Research has found that psychosocial interventions may not only help the patients to reduce the stress but may also prolong survival in patients with CAD and Cancer. Positive thinking

of love, courage, optimism, purpose in life, HOPE and HAPPINESS not only add years to one's life but also add life to one's years. Positive emotions, feelings and a positive mental attitude can improve the quality of people's lives and heal their bodies of illness and stresses (Wong, 1989). Positive feelings of Happiness and Hope are protective in developing serious ailments. Many clinicians and researchers have argued that positive feelings of hope and happiness are beneficial in treating serious medical illnesses such as Cancer (Irving, Snyder, & Crowson, 1998). Hope's importance to health care is linked with an increased quality of life (Farran, Wilken & Popovich, 1992), less use of health care resources (Herth, 1989) and better health outcomes (Owen, 1989).

1.3. CORONARY ARTERY DISEASE (CAD)

Coronary artery disease is the leading cause of morbidity and mortality in most countries across the globe and it seems to spare no segment of the society. According to the World Health Organization (WHO), CAD is the leading cause of death in the world. It is called as "epidemic of modern times" more prevalent in developed world due to affluent life style and increasing life expectancy. The 20th century has witnessed its impact more in parts of less privileged developing countries. Today, CAD is looming in India also, affecting 2.5% of the entire population and it is expected that by the year 2020 it will be the leading cause of mortality and disability between the age 30 to 60 years (Gupta, 2001; Sethi, 2000). According to the latest report by a penal of experts from the WHO Indians have a 150% percent to 400% higher death rate from heart attack as compared to Americans, and Indian women are 8% more liable to develop cardiovascular problems than women from other parts of the world. The increase in CAD rates in India can be explained by epidemiological transition resulting in changes in life style,

urbanization, mechanization and dietary patterns (Yusuf, Onpuu & Anand, 1998; Rema, et al. 2001). WHO (1982) defines the CAD as "an impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart." Coronary artery disease is our "modern epidemic" i.e. a disease that affects population and not an unavoidable attribute of ageing.

The following types of Coronary Artery Disease (CAD) are considered in the present study.

1.3.1. Angina Pectoris

It is defined as chest pain or discomfort of cardiac origin that usually results from a temporary imbalance between myocardial oxygen supply and myocardial oxygen demand. Angina pectoris is the medical term for chest pain or discomfort due to Coronary heart disease. It is associated with a disturbance of myocardial function but without myocardial necrosis. It occurs when the heart muscles do not get as much blood (hence, as much oxygen) as it needs, this usually happens when one or more of the heart's arteries is narrowed or blocked. Insufficient blood supply is known as ischemia. Typical angina is uncomfortable pressure, fullness, squeezing or pain in the neck, jaw, shoulder, back or arm. It may occur with exertion or spontaneously at rest. Angina is a sign that the person is at an increased risk of heart attack, cardiac arrest and sudden death (AHA, 2002).

1.3.2. Myocardial Infarction (MI)

Myocardial infarction (MI) is the medical term for heart attack. MI occurs when there is an abrupt decrease in the blood supply to part of the heart muscle-the

Myocardium. This reduction or stoppage of blood supply happens when one or more coronary arteries supplying blood to the heart muscles are blocked. This is caused usually by atherosclerosis. If the blood supply is cut off for more than a few minutes, muscle cells suffer permanent injury and die. This can kill or disable someone, depending on how much the heart muscles are damaged. Sometimes a coronary artery temporarily contracts or goes into spasm. When this happens, the artery narrows and blood flow to the parts of the heart muscles decreases or stops. A spasm can occur in normal appearing blood vessels as well as vessels partly blocked by atherosclerosis. This causal mechanism of the spasm is not known, but a severe spasm can cause a heart attack. The first coronary presentation for women is more likely to be angina, whereas in men it is more likely to be myocardial infarction.

1.3.3. Congestive Heart Failure

Congestive heart failure (CHF) is a condition in which the heart's function as a pump is inadequate to deliver oxygen rich blood to the body. Congestive heart failure can be caused by:

1. Diseases that weaken the heart muscle,
2. Diseases that cause stiffening of the heart muscles, or
3. Diseases that increase oxygen demand by the body tissue beyond the capability of the heart to deliver adequate oxygen-rich blood.

Congestive heart failure can affect many organs of the body. For example, the weakened heart muscles may not be able to supply enough blood to the kidneys, which then begin to lose their normal ability to excrete salt (sodium) and water, this diminished

kidney function can cause the body to retain more fluid. The lungs may become congested with fluid (pulmonary edema) and the person's ability to exercise is decreased. Fluid may likewise accumulate in the liver, thereby impairing its ability to rid the body of toxins and produce essential proteins. The intestines may become less efficient in absorbing nutrients and medicines. Fluid also may accumulate in the extremities, resulting in edema (swelling) of the ankles and feet, eventually, untreated, worsening congestive heart failure will affect virtually every organ in the body.

1.3.4 Cardiac Arrhythmia

The term arrhythmia comes from the Greek word, loss + rhythmos, rhythm = loss of rhythm. In an arrhythmia the heartbeats may be too slow, too rapid, too irregular, or too early. Rapid arrhythmias (greater than 100 beats per minute) are called tachycardias. Slow arrhythmias (slower than 60 beats per minute) are called bradycardias. Irregular heart rhythms are called fibrillations (as in arterial fibrillation and ventricular fibrillation). When a single heartbeat occurs earlier than normal, it is called a premature contraction.

1.3.5. Risk Factors in Coronary Artery Disease

The American heart association (AHA 2007) lists 7 factors related to increase risk for CHD (1) age, (2) sex (males are at a greater risk), (3) cigarette smoking, (4) elevated blood pressure, (5) elevated serum cholesterol, (6) an increase in the size of the left ventricle of the heart as revealed by electrocardiogram and (7) diabetes. The risk of heart disease generally increases with the number and severity of these factors. However, Jenkins (1974) has concluded that these traditional factors leave at least half of the etiology of CHD unexplained. Noting this circumstance, cardiovascular researchers have increasingly turned their attention to possible non-biological contributions to the

disease's development i.e. to psychological and personality factors. The factors can be grouped under the following headings:

1. 3.5.1. Constitutional Factors

(a) Age

The incidence of coronary artery disease increases with age. The onset of atherosclerosis starts in childhood with the formation of fatty streaks. It is a disease with its setting in pediatric age group where life style, habits etc. are conditioned. Recognition of existing risk factors in teens and early twenties and corrective life style modifications offers the greatest chance for prevention of the clinical disease.

(b) Sex

Men tend to suffer from coronary artery disease more often than women in younger ages. Women lag behind in incidence by ten years, but gap closes with advancing age. The frequency and severity of coronary artery disease in post-menopausal women increases rapidly. Once coronary artery disease appears the prognosis for reinfarction and death is poorer in women than men (Peel, 1955).

(c) Family History

Coronary artery disease is common when atherosclerotic disease is present in parents and siblings especially before the age of 55 years. Family history is frequently associated with other risk factors but is also an independent risk factor (Schweitzer et al.1962).

(d) Personality Type

Certain personality types have been associated with propensity to coronary artery disease. Friedman & Rosenman (1974) identified a coronary prone behavior pattern "type A". Type 'A' personality is manifested by exaggerated sense of urgency and competitive drive. This is associated with twice the expected rate of coronary artery disease .Among women this effect is experienced both by housewives and working women. Among men this effect is primarily noted in white collar jobs. Since the evidence linking Type 'A' behavior to CHD was overwhelming therefore in (1981) The American heart association decided to classify Type 'A' behavior as a risk factor for heart disease.

1. 3.5.2. Controllable Factors

(a) Hypertension

Raised blood pressure is the single most useful test for identifying individuals at a risk of developing coronary artery disease. In 95% of hypertensive's the cause of hypertension could not be found despite extensive investigations and hence termed essential. Essential hypertension is particularly common in persons with family history of high blood pressure, blacks, obese, alcoholics, oral contraceptive users and those taking excess sodium (Wang et al., 2006). Cardiovascular mortality increases three fold at higher levels of blood pressure.

(b) Blood lipids

Blood lipids are central to the atherosclerotic process and constitute one of the chief risk factor of coronary heart disease. Diet rich in saturated fats and cholesterol result in elevation of serum cholesterol levels. The average adult cholesterol value of 225

mg% is well above optimal. This index alone increases the risk of coronary heart disease fivefold. Risk associated with cholesterol is lower in women and decreases with age.

(c) Obesity

Obesity independently has only a moderate impact as a coronary artery disease risk factor. The effect is largely mediated through its enhancement of other risk factors like hypertension, hyperlipidemia, diabetes etc. (Armstrong, Dublin, Wheatley & Marks, 1951). Obesity is often expressed in terms of body mass index (BMI). A BMI of 30 or more in males and 28.6 or more in females indicates obesity (WHO, 2000). Even mild obesity increases the risk of premature death. Diabetes Mellitus, hypertension, atherosclerosis, gall bladder disease and certain types of cancers (Surgeon General's Report on Nutrition and Health, 1988). The effect of obesity is more significant in women than in men and decreases with age. Of the coronary artery disease manifestations angina pectoris and sudden death are more significantly related to obesity.

(d) Diabetes mellitus

Both independently and through its impact on other risk factors, diabetes exerts a major impact on cardiovascular risk. Diabetes mellitus imposes a two to three fold excess risk of coronary artery disease, more so in women, who are especially prone to coronary mortality, cardiac failure and stroke. Diabetes is also associated with hypertension, elevated low density lipoprotein cholesterol, reduced high density lipoprotein cholesterol levels which are all risk factors for coronary artery disease.

1. 3.5.3. Life Style Factors

(a) Smoking

Cigarette smoking is a potent risk factor for both coronary artery disease and sudden death. The risk is most evident at youngest ages and becomes progressively weaker with increasing age. The level of coronary risk dose is dependent i.e. determined by the number of cigarettes smoked. Inhalation appears to be the requirement for the elevated risk. Men especially in younger age groups are more affected by smoking (Doll, Gray, Hafner & Peto, 1980). Cigarette smoking is also a strong risk factor in women as well (Dicks & Stone, 1978) specially those women using oral contraceptive pills. Cessation of cigarette smoking is probably the most direct and immediate means to achieve a significant reduction in one's coronary risk profile.

(b) Oral Contraceptive

The use of oral contraceptive pills has been connected retrospectively and prospectively with the development of coronary artery disease. Oral contraceptive Study (Royal College of General. Practice, 1974) and Oxford Study in UK (Vessey, 1971; Vessey & Mann, 1981) provided conclusive evidence that the use of combined pill was associated with an excess mortality, with a 40% higher death rate than in women who have never taken the pill. The evidence was convincing that the complications were associated with the estrogen content of the pill. Later progesterone was also implicated and its content in the combined pill was also reduced along with the estrogen content of the pill. Women using pills require appropriate monitoring so that those who demonstrate deterioration of their cardiovascular risk profile can be properly treated and afforded alternate methods of contraception.

(c) Physical Activity

Epidemiological studies suggest that greater physical activity may protect against coronary artery disease. Regular exercise will improve cardiovascular functional capacity and decrease myocardial oxygen demand for any level of activity. Sustained activity for 20 to 30 minutes at least 3 days a week is necessary to achieve a substantial fitness level and protective effect. Aerobic exercises (e. g. walking, running, cycling, and swimming) are beneficial while isometric exercises may actually be harmful (Dishman, 1994).

(d) Coffee

Some hemodynamic stimulation results from caffeine containing beverages, which has led to the hypothesis that caffeine, may contribute to the development of coronary artery disease. Prospective studies have failed to show significant increase in coronary events associated with coffee consumption especially if cigarette use is taken into account (Yano, Rhoads & Kagan, 1977).

(e) Stress

Persistent stress due to low social class, lack of control in one's job, job strain (defined by high psychological demands and lack of control) and certain enduring dispositional attributes are believed to affect arterial lesion progression and the development of coronary artery disease over time (Cohen, Kaplan & Salonen, 1999; Everson et al., 1996). A considerable body of research supports the association between competitiveness, and direness and the development of CHD (Matthews, 1988).

Stressors in the social environment, recurrent hostility and a hard driving disposition leads to elevation in cortisol and sympathomimetic neuromediators and appear to facilitate the development of CAD and atherosclerosis.

(f) Negative Emotions and Heart Disease

Prospective studies have shown that men and women who experience chronic high levels of hostility, depression or anxiety are more likely than others to develop heart disease and hypertension (Weidner, et al. 1986). The link between negative emotions and heart disease involves two avenues. First, people tend to have less healthful lifestyles when they experience negative emotions. Second, negative emotions have physiological effects that promote heart disease. Some of the clearest physiological links have been shown among people with the Type A behavior pattern. When in stressful situations, Type A individuals – particularly those who experience frequent high levels of anger and hostility – often show high physiological reactivity, which includes increased blood pressure, catecholamine and corticosteroid levels (Smith, 1992).

Type A people chronically produce high levels of catecholamine's and corticosteroids, especially when under stress (Pope & Smith, 1991; Suarez & Blumenthal, 1991). Chronic high levels of these hormones in the blood can damage the heart and blood vessels. Evidence now suggests that epinephrine (a catecholamine) increases the formation of platelet clots in the blood, which can block arteries and cause a heart attack (Markovitz & Matthews, 1991).

1.4. CANCER

Cancer is often viewed as an acute and usually fatal disease. It's the disease most people fear most. The word 'cancer' comes from the Greek word for crab 'Karakmos'. The ancient Greek physician Hippocrates who first described cancer about 2500 years ago noticed that some malignant tumor resembles a crab, a hard mass with claw like extensions. In modern times cancer has retained its reputation as an alien invader and is perhaps the most feared of all non-infectious diseases. Cancer is not the most common cause of death, but it is correctly seen as a progressive, often fatal condition that cannot always be successfully treated.

All tumors are not cancerous. Benign (non-cancerous) tumors tend to remain localized and usually do not pose a serious threat to health. In contrast malignant (cancerous) tumors consist of renegade cells that do not respond to the body's genetic controls on growth and division of cells.

A basic characteristic of life and growth is that body cells reproduce in an orderly and controlled fashion. Normal cells of most tissues divide only to replace dying cells or to repair injuries in a controlled manner. Irregularities in this process can cause unrestricted cell growth, usually forming a tumor called Neoplasm (American Cancer Society (ACA), 2003, Tortora & Grabowski, 2003) Cancer cells continue to grow and divide in an uncontrolled manner. Cancer cells can accumulate to form tumors that may compress, invade and destroy normal tissue. An important characteristic of cancer cells is that they do not adhere to each other as strongly as normal cells. As a result they may break away from a tumor and get into the blood stream or lymph system and can be deposited in other areas of the body and form new tumors. The spread of a tumor to a

new site is called metastasis. When the cancer spreads, it is still named after the part of the body where it started. Different cancer types vary in their rate of growth, pattern of spreading through the body, and response to different catmints (21st Century Oncology, 2001).

Cancer strikes people of all ages but especially middle aged people and elderly. It occurs about equally among people of both sexes and can affect any part of the body. The parts most often affected are the skin, the digestive organs, the lungs and the female breasts. Without proper treatment, most kinds of cancer are fatal .In the past the methods of treatment gave patients little hope for recovery, but presently the methods of diagnosing and treating the disease have improved greatly.

Since the 1950's about one-third of all persons treated for cancer recovers completely, or live much longer than they would have lived without treatment. Much research is to be done to find methods of prevention and curing the disease. To help further research in this area, many countries have anticancer programs.

1.4.1. Types of Cancer

There are more than 100 identifiable forms of cancer and the large majority can be classified into 5 types based on the kind of tissue in which it develops (Tortora & Grabowski, 2003)

Carcinoma: This is cancer of the epithelial tissues that forms the skin and the linings of the internal organs. Carcinomas accounts for approximately 85 percent of all adult cancers. They include cancer of breast prostate, colon, lungs, pancreas, and skin.

Sarcomas: This is cancer of connective tissue, malignancies of cells in muscles, bones, cartilage and fluid. Much rare than carcinoma, sarcomas account for only about percent of all cancers in adults.

Lymphomas: This is one of the types of cancers that form in the lymphatic system. Included in this group is Hodgkin's disease, which is a rare form of lymphoma that spreads from a single lymph node and non Hodgkin's lymphoma, in which malignant cells are found at several sites. Approximately 60,000 new cases of lymphoma are diagnosed each year of which 90 percent are non Hodgkin's lymphoma.

Melanomas: or neoplasm of a special type of skin cell that produces the skin pigment called melanin.

1.4.1.1 Types of Common Cancer

Lung Cancer: Carcinomas arising in the lung have recently become the most common type of cancer to occur and, by far, account for the leading cause of cancer related deaths, in addition, the incidence of lung cancer has been increasing and continues to increase relentlessly every decade.

Carcinomas of the lung most frequently occur in the 50 to 60 years old age group and are associated with many kinds of irritants ranging from asbestos to tobacco smoke. One of the most common symptoms of lung cancer is a persistent cough. Other symptoms include chest pain, shortness of breath and blood coughed up from the lung (hemoplysis).

Breast cancer: Breast cancer is the next most common malignancy and the most common cause of cancer related deaths in females. The disease has a wide variety of

presentations, as well as behaviors. In some patients it proves to be rapidly fatal, while other patients manage to live in symbiosis with their disease for many years. In addition, the disease frequently proves to be hormonally sensitive and the clinical course and management in perverse post menopausal patients may differ significantly.

Carcinoma of the breast usually is found as a painless mass within the breast, at times becoming attached to overlying skin causing dimpling or retraction of the nipple. Breast cancer typically occurs in the pre-menopausal period and appears to be related to an unopposed, prolonged estrogenic stimulus. For example, women who never were pregnant and therefore never had their menstrual cycle interrupted, have an increased incidence of breast cancer, conversely, women who were pregnant before age 20 or nursed their babies for prolonged periods or who had an ophorectomy at a young age appear to have a smaller risk of this disease.

Breast cancer is most likely to strike women between the ages of 35 and 55 to about the age of 65, in rare instances, men also develop breast cancer. Nearly 70 per cent of all female breast cancer patients recover and remain free of the disease 5 years or longer after treatment.

Colorectal cancer: Colorectal cancer is cancer of the large intestine (colon). In the western world this is one of the most common type of cancers, its incidence rises with age, beginning around 40 and reaching a peak between 60 and 75. Men and women are affected about equally.

Symptoms of colorectal cancer vary, depending on the site of the growth in the colon or rectum. Generally there is a change in bowel habits such as constipation diarrhea, or episodes of both, and occasionally nausea or anemia, stool may become

either flattened or pencil shaped, and they may contain blood, visible or not. Because colorectal cancer is slow growing, physical symptoms may not appear for quite some time. The best prospect for an early diagnosis lies in regular physical examinations that include stool testing or blood and proctoscopic examination.

Prostate Gland Cancer: Prostate Gland cancer involves the large gland surrounding the male urethra just below the bladder, affecting about 96,000 men annually. The disease progresses very slowly. Only when the disease is well-advanced the symptoms occur. One of the main symptoms is difficulty in urination, resulting from an enlarged prostate, normally about the size of chestnut, which then obstructs the flow of urine. There may be a need to urinate frequently, particularly at night. Urination may be accompanied by a painful or burning sensation. Blood may appear ill, the urine and urination may be difficult to start and stop. These symptoms occur more frequently with a benign enlargement of the prostate, called benign prostate hypertrophy.

Bladder cancer: Bladder cancer is the most common malignancy of the urinary tract. About 70 percent of those who get bladder cancer are men, many of whom are between the ages of 50 and 70. An early symptom may be a small amount of blood in the urine (microhematuria). This is more often associated with conditions of the kidneys. A more common sign of bladder cancer is gross hematuria, where the urine becomes red. If the malignancy has developed in the bladder wall itself, it spreads rapidly to underlying muscles and is very difficult to treat. If the cancer has not spread before treatment is initiated, the recovery rate is about 70 percent. Recurrence of bladder cancer is relatively common.

Skin cancer: A common cause of skin cancer is excessive exposure to sun, the most frequent victims being people with fair skin. Many of them live in the southern and south-western states, where the sun is strong and the skin is frequently exposed to it. Skin sensitivity to the sun may also be increased by antibiotics, certain drugs, and birth control pills. Symptoms of skin cancer may include any chance in the appearance of the skin, such as a wound that does not heal, or any sudden change in a birth mark, mole or wart. Any mole that bleeds, enlarges, itches, shows up after age 30, or becomes tender should be examined by a doctor immediately. Special precautions with moles are extremely important because they are often starting point for malignant melanoma, a deadly form of skin cancer that can spread to other parts of the body.

Leukemia: This type of cancer attacks the blood-forming tissues, such as bone marrow. Leukemia leads to a proliferation of white blood cells in the blood stream and bone marrow, which impair the immune system. Although often considered a childhood disease, leukemia strikes for more adults (as estimated 25,000 cases per year) than children (about 3000 cases per year) **(National Cancer Institute 2001).**

Symptoms include fatigue, blood in the stool, bleeding gums, frequent infections and bruises, enlarged spleen and lymph- nodes, pain in the bones or joints and weight loss.

1.4.2. Symptoms of Cancer

Cancer has no symptoms in the earliest stages it may appear before the cancer begins to spread. The American Cancer Society (ACA, 2003) lists seven warnings, anyone of which may indicate that disease is developing:

1. Any changes in bowel or bladder habits. These might indicate cancer of colon, bladder or prostate.

2. A sore does not heal. This could be a warning that mouth and skin cancer is developing.

3. Blood in the urine may be a symptom of bladder or kidney cancer. Blood or mucus in the stool may indicate bowel cancer, unusual vaginal discharge or bleeding might be a sign of cancer of the female reproductive organs.

4. A thickening or a lump in the breast or elsewhere in the body.

5. Persistent indigestion or difficulty in swallowing. These may be sign of stomach cancer or cancer of esophagus or throat.

6. Obvious change in wart or a mole, any sudden change in their size, shape or color could signal skin cancer.

7. Persistent cough or chronic croakiness. A persistent cough may be a sign of lung cancer, especially if accompanied by spitting of blood and loss of weight. Anyone experiencing these symptoms for two or more weeks should promptly consult a physician. Any of these symptoms should be considered a possible warning sign of cancer, but not definite indications of cancer. Authorities agree that early detection of cancer is the most important ingredient in successful treatment. Certain type of cancer can be detected in the early stages of development through self examination. Breast cancer and testicular cancer is common example.

1.4.3. CAUSES

There is no specific cause of cancer. Most experts agree that people develop cancer mainly through repeated contact with one or more cancer causing agents, known as carcinogens. Scientists suspect that some people may agree to a tendency towards some forms of cancer, such as breast and colon cancer.

Carcinogens increase the probability of cancer because they damage body cells, eventually causing at least one cell to become cancerous. The most common chemical carcinogen is the tar found in tobacco smoke. Industrial chemicals, such as arsenic, asbestos and some oil and coal products can increase the risk of cancer. Chemical carcinogens polluting air and drinking water can raise the risk of cancer for entire communities. In microscopic concentrations they are also used in some food and agricultural processes.

Some natural substances, such as the molds that grow on corn and peanut crops, are also suspected carcinogens. Diets that are high in fat may play a role in colon cancer. Over exposure to the ultraviolet rays in the sunlight can cause skin cancer, particularly in people with fair, sensitive skin. Large doses of X-rays are also a cancer hazard, as are radioactive substances.

Moreover, some psychological factors play a vital role in the development of cancer and predicting behaviors such as smoking and diet, which are implicated in its initiation. The association between melancholia and cancer was first suggested by Galen in A.D. 200-300. Gedman (1701) also suggested that cancer might be related to life disasters (Ogden, 1996). Following are some common psychological factors.

Behavioral factors: Behavioral factors have been shown to play a role in the initiation and promotion of cancer. Smith and Jacobson (1989) reported that 30 percent of cancers are related to tobacco use and 35 percent to alcohol. These behaviours can be predicted by examining individuals' health beliefs.

Stress: It has also been shown that stress has a role to play in cancer. Laudenslages, Ryan, Drugan, Hyson and Mairr (1983) reported a study which involved exposing cancer-prone mice to stress (shaking the cage). They found that if this stressor could be controlled, there was a decrease in the rate of tumor development. If the stressor was perceived as controllable, this resulted in an increase in tumor development. This suggests a role for stress in the initiation of cancer. Sklar and Anisman (1981) suggested that an increase in stress increased the promotion of cancer, not its initiation.

Life events: It has been also suggested that life events play a role in cancer. A study by Jacobs and Charles (1980) examined the differences in life events between families who had a member who was a cancer victim and families who did not. They reported that among families with a cancer victim, more had seen their health status deteriorate and more had got divorced, suggesting that life event may well contribute to the onset of cancer.

Type C personality: Type C individuals are described as passive, appeasing, helpless, and other focused and unexpressive of emotions. Eysenck (1990) described it a cancer prone personality, and suggests that this characteristic of individuals who react to stress with helplessness and hopelessness, and individuals who repress emotional reaction to life events. An early study by Kissen (1966) supported this relationship between personality and cancer. It is reported that heavy smokers who develop lung cancer have a

poorly developed outlet for their emotions, perhaps suggesting type C personality. Shaffer, Graves, Swank and Pearson (1987) carried out a prospective study to examine the predictive capacity of personality and its relationship to describe cancer in medical students over 30 years. At follow-up, they describe the type of individual who was more likely to develop cancer as having impaired self-awareness, being self sacrificing, self blaming and not being emotionally expressive. The result from this study suggests that those individuals who had this type of personality were sixteen times more likely to develop cancer than those individuals who did not.

Some studies have suggested the role of cancer prone personality type and its link with the onset or progression of cancer (Bleiker, 1995; Eysenck, 1994; Greer & Morris, 1975).

1.4.4. Psychological Impacts of Cancer

Cancer has historically been viewed as an acute and usually fatal disease. Many sources of psychological stress and strain are related to the diagnosis of cancer, the treatment of cancer, and the survival of cancer. Distress in patients begins with the discovery and diagnosis of cancer and continues throughout treatment and post-treatment transitions. **Mullan (1985) used the term 'seasons** of survival' to describe a three stage progression of events which can be related to cancer. 'Acute survival' begins at diagnosis and is dominated by the medical treatment process. 'Extended survival' refers to the transitional stage during which cancer patients reengage into everyday lives. 'Permanent survival' is considered to be disease free (Marcus et al., 1998).

A rationale for expecting psychological effects after cancer treatment has been based on the vulnerability of the cancer patient to three types of stressors (Marcus et al., 1998).

1. Anticipatory stress is defined as the "anticipated threat of death arising from personal confrontation with mortality". This includes anxiety, depression, damaged body image, and fears of recurrence of cancer.
2. Residual stress has been considered as a form of stress syndrome, a grief reaction, or a traumatic disorder.
3. Current stress is conceptualized as the stress cancer patients confront when reengaging in their premorbid lifestyle.

These stresses together interact to create chronic vulnerability. Behavioral research and practice are becoming a necessary part of the treatment and care of patients with cancer. Cancer patients struggle with quality of life issues. Behavioral involvement has become more common to help cancer patients to deal with their 'well-being, their mental health, and other psychosocial factors that affect the disease course as well as the response of the patient to medical treatment and their overall survival (Baum, 1990).

Psychological complications that are not detected, treated, or prevented can cause complications as well as compromised treatment outcomes.

The treatment of psychological issues in cancer patients is complex. Treatment varies according to stage of illness, patient characteristics, and the phase of discovery or treatment of cancer.

Early interventions seek to prevent major psychological distress when cancer is

discovered and diagnosed. The diagnosis of cancer presents the patient with demands that exceed ordinary daily activities of living. Patients may experience feelings or fear, stress, and uncertainty due to the severe life threat associated with the diagnosis of cancer.

Many patients report adjustment problems as well as feelings of depression, anxiety, and isolation. Feelings of guilt may be present if a patient feels that a past behavior has lead to the current diagnosis of cancer. Adjustment problems may be present for years and may develop into debilitating psychological disorders. Patients may become overly preoccupied with their health and may spend more time focusing on the despair in their future rather than on their present situation (Montgomery & Bovbjerg, 2004).

Differing severity or disease progression leads to different worry and coping responses among patients. Some cancer patients are forced to deal with disfiguring effects of surgery, such as breast cancer patients having a mastectomy.

Many patients also have to make the decision of which treatment they feel is right for them. Weighing the pros and cons of cancer treatment can cause major distress for cancer patients. Cancer patients commonly exhibit anxiety and depressive symptoms (Chaturvedi & Maguire, 1998).

Distress may hamper judgment and interfere with coping and problem solving skills. Early detection and treatment is generally the best indicator of cancer survival. The needs of cancer patients change throughout the cancer experience. Emotional support, psychoeducational material, coping strategies, and. relaxation training appear to be valuable throughout the entire disease process.

Cancer patients with advanced disease report more issues with depression and

anxiety and the need to work through existential issues. Cancer patients with later stages of disease report more issues with death and dying (Baum, et al. 2001). Advanced stage cancer patients also experience more side effects such as fatigue, sleep disturbance, as well as neuropathic pain.

Many cancers are characterized with concerns about post-treatment sexuality. Self-esteem and body image are a major concern for women diagnosed with breast cancer. Some cancer treatments may induce premature menopause which eliminates reproductive options and creates new problems for patients and their families. Poor adjustment to cancer can lead to depressed mood and feelings of hopelessness about self and future.

Psychological and social morbidity among cancer patients is high. Anxiety, demoralization, suffering, isolation, anger, and depression are especially common in patients with advanced stages of cancer.

1.5. HAPPINESS

The constitution only gives people the right to pursue happiness. You have to catch it yourself (Benjamin Franklin, Benjamin Franklin quotes, n.d).

Happiness comes from spiritual wealth, not material wealth. Happiness comes from giving, not getting. If we try hard to bring happiness to others, we cannot stop it from coming to us also. To get joy, we must give it, and to keep joy, we must scatter it (John Templeton, Heart quotes, n.d).

Research on happiness is relatively new in psychology but has taken off very quickly and produced a flood of research papers, several conferences and some books.

Human happiness has appeared again and again as the most valued of all human quests. Efforts to understand human happiness have absorbed a lot of thought. "Happiness" was a major issue in early Greek philosophy and several later philosophical schools. Currently, the subject is gaining a lot of attention in social sciences. The question then arises - What is happiness? People talk about how happy (or unhappy) they are feeling all the time, but are unable to define it. For Plato (427-347 B.C.), happiness is harmonious functioning of man's soul. It is subordination of the lower to the higher, of non-rational to the rational. Cicero (106-42 B.C.) in the book 'The Pursuit of Happiness' stated that happiness of life were more of mind and less of the body. He believed that, "there is no fool who is happy and no wise man who is not." In Indian Mythology, The Bhagwad Gita preaches happiness to be the very nature of self. It cannot be derived from any object in the world.

Happiness is primarily a subjective phenomenon "for which the final judge is who ever lives inside a person's skin" (Myers & Diener, 1995). It is a state of mind or feeling such as contentment, satisfaction, pleasure or joy. A variety of philosophical, religious, psychological and biological approaches have been taken to defining happiness and identifying its sources. Philosophers and religious thinkers have often defined happiness in terms of living a good life, or flourishing, rather than simply as an emotion. The ancients believed happiness was not achieved, but either God given or due to chance. If happiness was experienced, it was not a function of the individual but rather was generously bestowed upon them by the cosmos. At some point in time happiness did change from a divine gift to a self-evidence truth. Enlightenment thinkers believed that happiness could be attained in this life. If one was not happy, the logic went; the

prescription was to alter one's beliefs, customs and governance or living conditions.

Happiness, many maintain, is about feeling "good". However, happiness is not solely synonymous with intense pleasure that is too shallow a conceptualization. Happiness is much deeper.

Aristotle's notion of eudaimonia is an example. Eudaimonia i.e. (happiness) comes from the Greek en (good) and daimon (god, spirit and demon). Aristotle maintained that eudaimonia comes from identifying one's virtues, cultivating them, and living life in accord. Happiness is beyond feeling good, it is about doing good. Cicero believed that "Gratitude is not only the greatest of virtues, but the parent of all others" (world of quotes. com, n.d) Happiness is a natural by product, a gift in itself.

As per the Webster's third International Dictionary "Happiness is a state of well-being characterized by relative permanence, by dominantly agreeable emotion ranging in value from mere contentment to deep and intense joy in living and by a natural desire for its continuation."

Bertrand Russell, winner of a noble prize while writing on "the conquest of happiness" (1930) observed that there are many determinants of unhappiness but happiness is still possible if one thinks of positive attributes and practice them." Robin Sharma (2003) in his famous book on "the Monk who sold his Ferrari" tells that "happiness is a journey not destination. Live for today – there will never be another one quite like it." Thus it can be said that happiness is a long lasting enduring enjoyment of life, it is being in love with living.

1.5.1. Psychological Perspective

The search for happiness is not new and neither is academic interest in the topic. In 1776 the American declaration of independence argued for "certain inalienable rights that among these are life, liberty and the pursuit of happiness" (David, 2007). In recent survey (Easton, 2006) found that 81% of the U.K. population agreed that the Government's primary objective should be the creation of happiness not wealth.

David Cameron, HM leader of opposition, puts happiness firmly on the political agenda by arguing that "It's time we admitted that there's more to life than money, and it's time we focused not just on GDP but on GWP (General Well being)" (BBC, 2006).

It seems that the current political and media interest in 'happiness' has to a large extent been provoked by a surge of research interest in positive psychology (Diener, 2000). Indeed psychologists have led the call for measures of subjective well-being (SWB) to form the basis of Government policy and the political assessment of a Nation's Success (Diener & Oishi, 2000).

Though research on happiness is relatively new in psychology but has taken off very quickly and produced a flood of research papers, several conferences and some books. Some psychologists define happiness in terms of positive emotions – joy, fun, euphoria – others in terms of satisfaction and contentment with life as a whole, job, spouse, home and so on, a reflective state of mind". Happiness includes both these components. Happiness can also be defined as overall satisfaction of life. In Pirsig's words (1974) 'when we know what gives people happiness, we know the meaning of quality of life.' QL is also measured in terms of how happy a person is. Happiness is the ratio of material consumption and desire. Happiness not only reflects to material well-

being but is also concerned with personal judgments in economic matters, family considerations and health (Easterlin, 1973). Ross translated the term 'Eudaemonia' as happiness pointed out that it is probably better translated by a more neural term well-being. Jahoda (1958) noted that happiness is one of the criterion frequently used in notions of positive mental health but argues that it cannot be a sufficient criterion because there are some situations in which being happy would be inappropriate and a sign of psychological disturbance. The self rating of happiness could be used to measure the levels of subjective adjustment and demonstrated how happiness ratings were related to other measures of life problems (Gurin, Verof & Feld, 1960). Several studies such that of Bradburn (1960) , Warr (1978), Fellows (1956) , Shin and Johnson (1978) all have found that self-reports of happiness are meaningfully co-related with other indicators of psychological well-being such as social adjustment. Thomas Szasz quoted (Winokur, 1987) that "happiness is an imaginary condition formerly attributed by the living to the dead how usually attributed by adults to children and by children to adults."(p.133).

According to Bertrand Russell (1930) happiness depends "more than anything else upon what may be called a friendly interest in person's and things." He argued that to achieve happiness, one's passions and interests must be directed outwards, not inwards, it was too important to avoid self-centered passions." Thus happiness remains at centre stage in most social scientific efforts to monitor subjective well-being (Myers & Diener, 1995).

Eysenck (1983) clearly noted that "happiness is a thing called stable extraversion.... The positive affect in other people.... Then it only makes sense that happiness can be associated with extraversion."

Seligman (2002) proposed a theory of happiness similar to Aristotle's 'eudaemonia'. According to Seligman 'authentic happiness' is achieved upon identifying and cultivating one's signature strengths (e.g. curiosity, vitality, gratitude) daily in work, love and play. Three distinct paths exist. The pleasant path involves experiencing positive emotions about the past (e.g. forgiveness, contentment), present (e.g. joy, ebullience) and future (e.g. optimism hope). The "full life" is realized when one is fully engaged on all three paths. In his highly valued and quoted book "Authentic happiness" (2002), he commented that truly happy people have a full life which is fulfilling at three levels: the pleasant life, the good life and the meaningful life. Thus he identified 3 forms of happiness.

The Pleasant life: The significant factor in having a pleasant life is to develop the necessary character. Character development is the crucial factor here, especially regarding the attitude towards the past, the future and the present.

The Good Life: To enjoy a good life, enriching relationships and a positive attitude towards one's work, we require developing specific human qualities. These qualities are divided into six larger categories including courage, wisdom, compassion, spirituality, moderation and a sense of justice.

Meaningful life: We need to find out why we do what we do. What do we believe in? How do our daily actions fit into the grand scheme of things? Once we have found the real purpose of our lives and find that there is meaning in everything we do, our life becomes meaningful than hedonic pleasures. If it is also pleasant and good, then we have a full life.

Another conceptualization of happiness comes from the work of Ed. **Diener.**

Happiness which he calls 'subjective well-being' is comprised of 3 components – (a) frequent positive affect, (b) Infrequent negative affect, and (c) high life satisfaction (i.e. the cognitive component). Though related these three components appear independent.

The certain aspects of happiness are as follows:

Stability: Longitudinal investigations have shown that people tend to stick to their happiness judgment once forward. However, happiness judgments are not necessarily stable through time.

Definiteness: Only when people decide whether to judge their life's favorably or not, the concept of happiness applies. Therefore, happiness judgments can vary in definiteness.

Time emphasis: Happiness is an evaluation of life as a whole. The judgment may cover not only the present, but also draw on the past or anticipate the future.

Consciousness: Happiness is a state of consciousness or to put it differently happiness denotes what the person "really" believes.

Appropriateness: The degree to which the subjective evaluation fits with the given standards of good life is also a variable aspect of happiness.

Argyle, Martin and Crossland (1989) believed that happiness is composed of three related components: positive affect (pleasant moods and emotions) absence of negative affect (unpleasant moods and emotions) and satisfaction with life as a whole.

1.5.2. Correlates of Happiness

The following are the causes, various demographic and environmental correlates which affect happiness at varying levels:

Gender: It has often been observed that males occupy a privileged position in most societies. However, Michalos (1991) studied 18,000 college students in 30 nations and found very small sex differences in life satisfaction and happiness. Although men did not report higher SWB than women, men and women who are independent, confident and decisive have higher SWB. Another finding brings out that within sex, women report more negative affect and depression than men and are more likely to seek therapy for this disorder, yet men and women report approximately same levels of global happiness.

Income: Income is generally seen as an important source of happiness. However, the studies done in this field bring out a different picture. According to Myers (2000), in nations where Gross National Product is greater than $ 8000 per person, there's no correlation between National Wealth and Happiness of citizens. The relation between national wealth and SWB may be due, in part, to other benefits received by people of wealthier countries. People with substantial income agree that money can make them happy and unhappy, depending to how it is viewed. Hence the direct effect of wealth itself may not be the only determining factor as money can buy a degree of happiness. On average, wealthier people are happier, but the link between money and happiness is complicated.

"Money buys status and status makes people feel better" - Says Andrew Oswald, a U.K. economist. This helps to explain why people who can seek status in other ways may happily accept relatively poorly paid jobs.

Education: Learning makes for happiness because it is through learning that we influence the environment instead of being dominated by it and that we discover and develop the best in ourselves (Rodgers & Groombridge, 1976).

Marriage: Positive relation between marriage and happiness/subjective well being has been reported in international studies (Diener & Suh, 1997; Mastekasa, 1995). Marriage and SWB correlate significantly even when age and income are controlled (Gove, Hughes & Style, 1983). It is believed that marriage serves as a buffer against hardships of life and provides emotional and economic support which produces positive states of well-being (Coombs, 1991). Another explanation is that the married people live up to current social role expectations and are hence more likely to receive "social acceptance" than the unmarried people.

Work: Work is thought to be related to happiness because it offers an optimal level of stimulation that people find pleasurable (Csikszentmihalyi, 1990), positive social relationships and a sense of identity. In other words, apart from determining one's living conditions to some extent (income, social milieu, etc.), work is claimed to bring 'rewarding contacts' and enhance 'sense of meaningfulness'..

Health: Besides external living conditions, happiness also depends on internal individual characteristics. Individuals with a severe disabling condition may report low SWB (Mehnert, Krauss, Nadler & Boyd,1990). Physical attractiveness has also been found to generate greater happiness (Agnew, 1984) since it produces popularity with opposite sex and employers and is a source of upward mobility (Argyle, 1994). So perhaps beautiful people are happier because they are healthier.

Competencies: Intelligent people are expected to be happier so far as intelligence is a key to social success. Studies have found very small, but positive correlation between competency of intelligence and happiness. Diener and Seligman (2002) have said that it is 'social intelligence' that could be the real key to happiness. Further, Holmes et al. (2004) found more social skills among extroverts as one of the reasons for their happiness. Social skills improve the probability of attaining desired relationships with others, hence leading to happiness.

Life Events: Kanner, Coyme, Schaefer and Lazarus (1981) reported that the frequency of daily positive events correlates with positive affect at .33. Old people reported positive emotions just as often as young people but negative emotions much less frequently (Holmes, Kleiner, Douglas & Bond, 2004). It was suggested that older people may expect life to be harder and learn to live with it and are more realistic about their goals, with time running out they have learnt to focus on things that make them happy and let go of those that don't.

Religion: Religion can be an aid for psychological functioning. This has made various investigators expect that believers to be generally more satisfied with their life than non-believers. The reason may be that religious experiences offer a sense of meaning in daily life (Pollner, 1989). Moreover, religion offers social fulfillment through exposure to social networks composed of people who share similar attitudes and values (Taylor & Chatters, 1988).

Leisure: The distinction between work and leisure is quite subtle, since they may involve exactly the same activities: digging the garden, driving a car, decorating rooms, looking after other people, for example, may be either work or leisure. Some of the main

differences are that leisure is more autonomous, although less when done in a group, there is little or no supervision, the product, if any, is one's own property, and there is little or no material reward. Leisure defined as 'life outside work' was one of the best predictors of overall satisfaction.

Personality: Are there happy people? We have seen that circumstances and activities affect happiness, but are there individuals who are consistently above or below average, as there are people who are depressed? Research shows very clearly that there are happy people.

Several aspects of personality are related to happiness, though less intensive research has been done on them so far. These are:

1. Attribution style: Depressed people blame themselves for bad things that happen. However, this is not so much a cause of depression as an effect of it. Happy people attribute good events to themselves, not bad ones, but we don't know the direction of causation yet (Argyle & Crossland, 1987).
2. Positive thinking: Depressed people ruminate about unhappy things; if happy things come to mind they wonder how they might go wrong. Happy people ruminate about good things; if bad things come to mind they wonder how to put them right (Argyle, Martin & Lu, 1995). Happy people have an optimistic, rosy view of life; they recall good things in the past, expect good things to happen in the future, think well of themselves, and of others. This may be a cause of happiness, or simply part of it.
3. Internal control: This is important for health and mental health, and is also important for happiness. Individuals with good resources of various kinds are a

little happier: there are small effects of intelligence, physical attractiveness, education and so on.

4. Neuroticism is a strong predictor of unhappiness. It has little effect on positive affect but influences negative effect, and it also reduces satisfaction. And it does so by leading to adverse events, especially over work and money, just as extraversion leads to favorable events (Headey & Veenhoven, 1989).
5. Religion and politics: Modest correlations are found between happiness and church attendance. Rather more important is a sense of inner meaning of life. Freedman (1978) described cases of successful and prosperous people who did not have this, and asked themselves, 'Why am I doing all this?', 'What is it all for?' People with radical, revolutionary political attitudes are a good deal less happy than others (Harding, 1985).

From the above discussion, it can be concluded that causes and correlates of happiness are interrelated and have been shown to be complex. There is not one cause of happiness, rather, genetic, situational, personality, cultural, coping strategies, and goals must be integrated.

1.5.3. Biological Basis of Happiness

Are our brains "hardwired" for happiness? That is, does happiness have a biological basis, rooted in the evolution of the nervous system? Neuroscientist Richard J. Davidson (2003) observed that the word happiness "is a kind of a place holder for a constellation of positive emotional states. Of all the emotions, happiness is the One that scientists least understands."

The first real breakthrough came in 1950s, when American psychologists Olds, and Milner (1954) discovered what they named the "pleasure centers in the brain." When the cortex receives and processes a sensory stimulus indicating a reward, it sends signal to the ventral segmental area (VTA) in the midbrain. The ITA then releases dopamine not only into the nucleus acumens, but also with the septum, the amygdala, and the prefrontal cortex. What is the secret to the behavior elicited by the stimulation of the nucleus acumens? The answer is dopamine which is a neurotransmitter, a chemical substance released by neurons at their synaptic connections to other neurons in the brain. The first neurotransmitter has been found to be associated with positive emotions and feelings and therefore happiness.

The second breakthrough came in when Synder (1976) and Pert (1999) (both American neuroscientist) discovered that our brains produce endorphine. When released by the pituitary gland and the neurons in the hypothalamus, endorphine suppress pain and stimulates pleasurable feelings that accompany behaviour such as eating chocolates, laughing, smiling, touching, meditating, singing, listening good music etc. Thus, we know that happiness is associated with brain endorphins and the neurotransmitters dopamine and serotonin, which can be stimulated by hormones like adrenaline.

In 1990s Antonio Damasio first using positron emission tomography (PET) discovered that positive and negative feelings are both generated and processed by different parts of the human brain. Happiness activates the right posterior cingular gyrus, as well as the left insula and the right secondary sensorimotor cortex. Sadness decreases activation in these regions. Other structures in the basal region of the brain, such as the pons were activated in sadness but not in happiness. These Brain Imaging studies prove

to be very useful understanding brain basis of positive emotions such as happiness. Davidson (2001) also reported that the left side of the prefrontal cortex seems in general to be associated with negative emotions while the right side associated with positive emotions (subjects either watching happy video clips or meditating). Swanson (2000) has found growing evidence that the brain is hardwired for happiness via-goal seeking behavior. The individual propensity for happiness also depends on our genetic heritage. Both innate temperament and negative early experiences in life such as traumatic stress, and abuse are also extremely influential. We cannot change our genetic makeup, individual past. Behavioral sciences have developed many ways (cognitive behavior therapy, meditation etc.) of correcting and even healing detrimental influences of those factors on happiness.

Neuroscience thus has a crucial part to play in our understanding of well-being or happiness. However "the systematic training of the mind – the cultivation of happiness, the genuine inner transformation by deliberate selecting and focusing on positive mental states and challenging negative mental state – is possible because of the very structure and function of brain. But the wiring in our brain is not static nor irrevocably fixed. Our brains are adaptable. Much like computers, our brain does what they do through a combination of hardware neuroanatomical structures and software (cognitions and chemicals). Even if the hardware constraints how we think and who we are, we can always change software, reprogramming our minds at least in theory to make our lives happier and more fulfilled.

1.5.4.Spiritual Approaches to Happiness

Buddhism and Happiness

Wallace and Shapiro (2006) recently observed that the Buddhist tradition has focused for over 2500 years in cultivating exceptional states of mental well-being as well as identifying and treating psychological problems. Recent research in neuroscience is the beginning to show support for Buddha's theory of happiness. For instance, Davidson (2001) found that novice meditation practice was linked with significant greater activity in the left prefrontal cortex, an area of brain associated with positive emotion. They further supported it while examining the effects of mindfulness meditation on brain activity as well as psychological and immunological functioning.

According to Buddhism, mental suffering is due in large part to imbalances of mind. Sayings of Buddhists (Dhammpada) are important in understanding the nature of happiness described under the heads of (1) The twin-verses (2) Awareness (3) Joy and (4) Pleasure.

Bhagvad Gita and Happiness

One of the greatest contributions of India to the world is Holy Gita. The Bhagvad Gita can be experienced as a powerful catalyst for transformation. It means song of the Spirit, song of the Lord. It contributes to self reflection, finer feeling and deeper once inner processes. How life in world can become real education-dynamic, full and joyful no matter what the circumstances. What makes the Holy Gita a practical psychology transformation is that it offers us the tools to connect with our deepest intangible essence and we must learn to participate in the battle of life with right knowledge?

Gita tells us how to get out of unhappiness or dissatisfactions of life by cultivating and philosophy of life; identifying with inner core of self-sufficiency; striving for excellence through work is worship; building up an internal integrated reference point to face contrary impulse, and emotions and pursue ethico-moral rectitude (Ganguli, 2009).

1.6. HOPE

A dictionary definition of hope is "a desire and the confident expectation of its fulfillment". Fascination with the phenomenon of hope dates back to the Bible. Hope for a better future and salvation is a hallmark of the scriptures. St. Paul characterized hope as the essence of faith (Romans 8: 24-25, New International version). In the 17th century, a Dutch philosopher and theologian, Baruch de Spinoza, defined hope as a joy that comes from past or future images when something is in doubt. (The encyclopedia of positive psychology 2009) In the late 20th century, theoretical and scientific interest in the concept of hope has developed among investigators and clinicians in psychology, medicine and nursing.

Previous scholarly writings have defined hope as a "unidimensional construct involving an overall perception that goals can be met (French, 1952; Lewin, 1935; Stotland, 1969).

Hope is defined as "the process of thinking about one's goals, along with the motivation to move towards those goals (agency) and the ways to achieve those goals (pathways)" (Snyder, 1995).

"Hope is the perceived capability to derive pathways to desired goals, and motivate oneself via agency thinking to use those pathways" (Snyder, 2002). Snyder et al.

(1997) suggested that hope also seems to be the most powerful motivator. It was also endorsed by him that high hope is related to greater problem solving ability, perception of scholastic competence, social acceptance and athletic ability. More specifically, Snyder Irving and Anderson (1991) defined hope as "cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal directed determination) and (b) pathways (planning of ways to meet goals)."

According to Snyder (2000) hope has 3 necessary ingredients:

Goal-oriented Thoughts

Non-random human behaviors are directed by some goal, either short-term or long-term. Goals need to be of sufficient value to the Individual so as to occupy conscious thoughts. Goals should be attainable yet challenging in nature. Goals that are 100% likely to be achieved do not give people hope.

Pathways to Achievement

In order to achieve goals people need to generate plausible routes to achieve goals. This type of thought processes begin in infancy when cause and effect relationships are first being understood. Singular or multiple pathways need to be generated when obstacles are faced. Those with the highest levels of hope tend to generate multiple pathways to goal achievement.

Agency Thoughts

In this motivational component to hope, people believe that they can initiate and sustain the pathways to goal achievement. This type of thought begins after one year of

age when children realize they are actors who can influence their environment and initiate cause and effect relationships.

Although there are a variety of conceptualizations of hope, there is agreement on the essential characteristics of the concept. Hope, a factor in coping, if future oriented and considered to be multidimensional by most theorists. It enables an individual to cope with a stressful situation by expecting a positive outcome. Because a positive outcome is expected, the individual is motivated to act in the face of uncertainty. There are differences in conceptualizations with regard to whether hope has both state and trait components, whether it exists on a continuum with hopelessness and whether it is an antecedent, a strategy or an outcome of coping (Raleigh & Boehm, 1994).

Hope is rarely discussed without considering hopelessness and vice versa. In the psychology literature, many authors have linked hopelessness with negative emotions. Some such as Beck (1963, 1967) and Bernard (1977) identify hopelessness as a core characteristic of depression and suicidal behaviour (Abramson, Metalsky & Alloy, 1988; Beck, 1972; Beck, Kovacs & Weissman, 1975). Bernard hypothesized that hope, like depression, may originate from "heredity, physiology and health environment, and personal and individual orientation – especially the orientation of responsibility." Other authors consider hope and hopelessness to be related but nonlinear concepts (Farran, Herth & Poporich, 1995) and to exist simultaneously in the same individual (Dufault & Martocchio, 1985). Still others think hope and hopelessness are on a continuum (Stotland, 1965). As a result various models of hope emerged.

1.6.1. Stotland's Model of Hope

The publication of Ezra Stotland's book, *The Psychology of Hope* (1969), revolutionized the discussions regarding the concept of hope. Prior to this book, many investigators considered hope and hopelessness to be vague and indistinct concepts that prohibited quantification and systematic study. Through a review of the literature, Stotland developed a theory that portrays hope as an expectation of future goal attainment that is mediated by the importance of the goal for the individual and motivates action to achieve the goal. Expectation of goal attainment and importance of the goal are determinants of motivation. The greater the expectation and the greater the importance of the goal to the individual, the greater will be the effort to achieve the goal. If the goal is important and the individual perceives a low probability of attaining it, anxiety will be experienced. Because there is motivation to avoid anxiety, the greater the anxiety, the more the individual will be motivated to escape it. Hope is a component of adaptive action in a difficult situation, and hopelessness is a factor in maladaptive behaviour.

1.6.2. Miller's Model of Hope

Miller (1992) states that hope is a complex multidimensional construct. It is more than goal attainment; it encompasses a state of being. It involves a confident expectation of an ongoing good state or liberation from a difficult situation. Hope exists at three levels. The first level focuses on superficial wishes, is characterized by shallow optimism, requires little psychic energy to maintain, and produces no despair when it is not actualized. The second level focuses on hoping for relationships, self-improvement, and personal accomplishments and involves greater psychic energy than the first level. If these hope are not actualized, anxiety results. The third level is related to a desire for

relief from suffering, personal trial, or entrapment and involves a total dedication of psychic energy. If the individual perceives that relief is not impending, deep despair or giving up occur.

Miller and Powers (1988) identified 11 essential elements of hope from interviews of critically ill patients.

1. Mutuality and affiliation pertain to interpersonal relationships and the experience of unconditional love.
2. Sense of the possible involves a global attitude that there is potential in life.
3. Avoidance of absolutizing entails allowing flexibility in one's expectations and avoiding an all-or-nothing attitude.
4. Anticipation embraces the confident expectation of some future good combined with acceptance of the need to patiently wait.
5. Establishing and achieving goals are the "objects of one dimension of hope".
6. Psychological well-being and coping are factors that empower the individual to have the necessary psychic energy.
7. Purpose and meaning in life give the individual something to live for and to receive a sense of satisfaction with life.
8. Freedom is the ability to recognize that the individual can impact an outcome and maintain a positive attitude.
9. Reality surveillance involves cognitive tasks designed to obtain information that confirms the reality of the hope.
10. Optimism is essential for hope.

11. Mental and physical activation encompasses energy that is used to counteract apathy of despair.

The Miller Hope Scale (MHS; Miller & Powers, 1988) was derived from Miller's conceptualization of hope.

Miler's (1992) model of hope focuses on definitions of concepts related to hope with a few statements of relationships among the concepts. This reduces its ability to explain, predict, or control phenomena. Miller's model has proved to have limited usefulness to researchers who used the MHS but chose to use another conceptual framework. It is broadly generalizable to many populations and situations and has been used with various groups including college students (Miller & Powers, 1988), elderly (Beckerman & Northrup, 1996; Fehring, Miller & Shaw, 1997), the chronically ill (Herth & Stewart, 1994; Miller, 1992), the critically ill and their spouses (Miller, 1989). It lacks parsimony in that it uses many concepts and unclear relationship.

1.6.3. Self-Sustaining Process Model

Hinds and Martin (1988) used the ground theory approach to develop a definition of hope and the Self-Sustaining Process model. Grounded theory approach is an inductive research technique first described by Glasser and Strauss (1967). A theory evolves from the research process that involves formulation, testing and redevelopment of propositions.

According to Hinds (1984, 1988a), hope, for adolescents, is defined as "the degree to which an adolescent believes that a personal tomorrow exist." There are four hierarchical levels of believing in this model: (a) forced effort, (b) personal possibilities, (c) expectation of a better tomorrow, and (d) anticipation of a personal future.

Hinds and Martin (1988) conceptualized the Self-Sustaining Process by which adolescents help themselves achieve hopefulness during their illness experience. This process involves four sequential phases. The first phase of the Self-Sustaining Process is cognitive discomfort (T_1), the degree to which mental uneasiness is experienced. The second phase is distraction (T_2) in which the negative thoughts are replaced with neutral or positive thoughts and conditions through cognitive and behavioral activities. The third phase is cognitive comfort (T_3). The fourth phase is personal competence (T_4) (Hinds & Martin, 1988).

Hinds and Martin (1988) concluded that the Self-Sustaining Process is variable in that it can occur in minutes or weeks. Some phases take longer than others and may be bypassed. They also found positive relationships among the concepts.

The Self-Sustaining Process (Hinds & Martin, 1988) provides an understanding of hopefulness in adolescents that shows promise for description, explanation, prediction, and control. The model is logically adequate in that relationships are clear and predictions can be made from it. It is narrowly generalizable to the adolescent population, and it has parsimony in that it can be described using relatively few concepts and relationships.

1.6.4. Dufault and Martocchio's Model of Hope

Dufault and Martocchio (1985) also used the grounded theory approach to develop a conceptualization of hope. The researchers described their methodology as "participant observation in multiple settings". Hope is defined as "a multidimensional dynamic life force characterized by a confident yet uncertain expectation of achieving a future good which, to the hoping person, is realistically possible and personally

significant". Dufault and Martocchio describe hope as a process and not as a trait. It has two spheres and six common dimensions.

The spheres are generalized hope and particularized hope. Generalized hope relates to a sense of an indeterminate future good. Default and Martocchio (1985) noted that "generalized hope protects against despair when a person is deprived of particular hopes and preserves or restores the meaningfulness of life – past, present and future in circumstances of all kinds". Particularized hope focuses on a specific hope object that "may be concrete or abstract, explicitly stated or implied" and stimulates coping with obstacles and strategies for attaining the hope object.

Dufault and Martocchio (1985) described the following dimensions of hope: affective, cognitive, behavioural, affiliative, temporal, and contextual. The affective dimension focuses on 'sensations and emotions that are part of the hoping process". The cognitive dimension focuses on "the processes by which individuals with imagine, wonder, perceive, think, and remember. The behavioural dimension focuses on "the action orientation of the hoping person in relation to hope." The affiliative dimension focuses on "the hoping person's sense of relatedness or involvement beyond self as it bears upon hope." The temporal dimension focuses on "the hoping person's experience of time (past, present and future) in relation to hopes and hoping." The contextual dimension focuses on "those life situations that surround, influence, and are a part of persons' hope."

Dufault and Martocchio (1985) do not consider hope and hopelessness to be polar opposites on a continuum. Individuals may be hopeful for one outcome and hopeless in relation to another outcome.

Instruments Based on Dufault and Martocchio's Model of Hope are:

1. Herth Hope Scale (HHS: Herth, 1991)

2. The Herth Hope Index (HHI; Herth, 1992)

Dufault and Martocchio's (1985) model of hope defines the elements of hope but presents few relational statements. This reduces its ability to explain, predict, or control phenomena and hinders the model's logical adequacy (Walker & Avant, 1995). It is broadly generalizable to many populations and situations and has been used with various groups ranging from healthy elderly to individuals with cancer. It lacks parsimony in that it uses many concepts and few relationships are clear.

1.6.5. Hope and Coping

Often, hope is described as a coping strategy (Baum, Fleming & Singer, 1983; Korner, 1970; Lazarus & Folkman, 1984; Raleigh & Boehm, 1994), but it may also be described as an antecedent to coping (Dufault & Martocchio, 1985; Owen, 1989; Weisman & Bothwell, 1976) or as an outcome of coping (Engel, 1968; Farran & McCann, 1989). In fact, hope may have a role in all three aspects of coping.

1.7. HEALTH BEHAVIOUR

Health is undoubtedly the greatest bounty of nature to an individual. To the person who has lost his health, it is the most priceless possession of all.

As Sir William Temple wrote: "Health is the soul that animates all the enjoyments of life, which fade and are tasteless without it" (William Temple, 1628-1699, Brainy Quotes.com). According to the Webster's 1913 dictionary health is defined as "The State of being hale, sound or whole, in body, mind or soul, especially the state of

being free form physical disease or pain." There is no doubt that health and longevity have been aspirations of human beings since times immemorial. Benjamin Disraeli (British Prime Minister 1804-81) once pointed out the significance of health to the state and nation in these words "the public health is the foundation upon which reposes the happiness of the people and the strength of the nation."

There is little doubt that the way we lead our lives, directly or indirectly affects our health. Recognition of the influence of individual behavior on health goes back to Hippocrates. In the 20th century, research in the behavioral science has shown that it contributes strongly to our understanding of physical health and illness (Rodin & Salovey, 1989).

The following findings provide significant evidence of the impact of non-physical factors on health.

1. Certain illnesses are more likely to occur among individuals with specific personality characteristics (Suls & Rittenhouse, 1987).

2. A patient's recovery depends in part on how the physician interacts with him or her (Krantz, Grunberg & Baum, 1985).

3. In the affluent society of the United States today, scientific, technological and economic progress had led to great expansion of individual behaviour choices, many of which can affect health (Somers & Weisfeld, 1986).

4. A study in Great Britain comparing newspapers aimed at the higher socio-economic classes with those designed for the lower socio-economic classes revealed a striking difference in the coverage of health issues. Kristiansen and

Harding (1984) discovered that the "quality press" prints more information about health than the "popular press". These investigators suggested that such difference in content may be partly responsible for the greater number of illnesses and higher death rates among those lowest on the socio-economic scale. There are no adequate overall measures of functioning, vitality, or well-being. People tend to view health more globally and experientially. Although they may become concerned about specific symptoms, they tend to view their health in terms of an overall sense of well being and the extent to which the symptoms they experience disrupt their ability to function or interfere in some significant fashion with their activities. People's feeling states influence their sense of physical well-being. Persons reporting poor physical health are frequently depressed, feel neglected, have low morale, suffer from alienation, and are less satisfied with life. Although the causal sequence goes both ways, there seems little doubt that overall life experiences affect one's general sense of well-being.

1.7.1. Changing concepts among Professionals

Not only among the general public, confusion about health prevails today even among professionals. Health has been viewed by different scientists (e.g. biomedical scientists, ecologists, sociologists, psychologists etc.) from different angles giving rise to different concepts. These may be briefly described as under:

(a) Biomedical concept: The biomedical scientists have traditionally defined health as "absence of disease" and disease as a deviation from a biomedical norm. The biomedical concept is based on the germ theory of disease, which dominated medical thought at the turn of the 20th century, looked upon the human body as a machine, disease as the

consequence of the breakdown of the machine and one of the doctor's task as the repair of the machine.

(b) Ecological concept: The drawbacks of the biomedical concept gave rise to other concepts, one of which has drawn particular attention is the ecological concept. The ecologists view health as a harmonious equilibrium between man and his environment, and disease as maladjustment of the human organism to the environment.

(c) Bio-Social and Bio-cultural Concepts: Developments in social sciences revealed that disease is both a biological and social phenomenon. The social scientists, therefore, asserted that not only biological factors, but also social, cultural, economic and psychological factors should be taken into account in defining health and disease.

(d) Holistic view of health: The holistic view is a synthesis of all the above concepts. According to this concept health is viewed as a multidimensional process involving in well-being of the whole person in the context of his environment. The holistic view presupposes that all sections of the society have an impact on health.

The WHO defined health as a "state of complete physical and mental and social well-being and not merely the absence of disease or infirmity." This definition is important because some 54 nations reached International agreement on it in the 1st world health Assembly in 1948.

The initial focus on disease and cure shifted to prevention and more recently it has gravitated to subjective experiences, personal strengths and social interactions which make life more meaningful. It envisages three dimensions or components of health – physical, mental and social, all closely related. A fourth dimension has also been

suggested, namely, spiritual health.

1.7.2. Dimensions of Health

(a) Physical Health: It conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of the body.

(b) Mental Health: In general, the concept of mental health connotes such abilities as those of thinking clearly and coherently, of assuming responsibilities in accordance with one's capacities, of finding satisfaction, success and happiness in accomplishments of everyday tasks and living effectively with others.

(c) Social Health: Social health takes into account that every individual is part of a family and of a wider community and focuses on social and economic conditions and well-being of the "whole person" in the context of his social network.

(d) Spiritual health: Spiritual health for some people is connected with religious beliefs, and practices for others it is to do with personal needs, principles of behavior and ways of achieving peace of mind and being at peace with oneself.

1.7.3. Determinants of Health

Health does not exist in isolation. It is influenced by a complex of factors. These are:

(a) Heredity: Heredity is a foundation factor and the innate endowment for health given by one's parents. It plays an important role in determining the uniqueness of each individual and his particular health status. The physical and mental traits of every human are unique and are to some extent determined by the nature of his gives at the moment of

conception. The state of health therefore depends partly upon the genetic consideration of man.

(b) Environment: Social and medical scientists have clearly established association between environment and the prevalence of illness. It is obvious that a stable and harmonious equilibrium between him and his "total environment" (physical, biological and psycho-social) is needed to reduce man's vulnerability to disease, and to permit him to lead a more productive and satisfying life.

(c) Ways of living: Health is a way of life. It is related deeply to life style which includes way of living, peers and hygiene, habits and behaviour. These life activities are the experiences engaged in by the individual. These experiences determine the way he lives, which to a larger extent produce the quality of life and the degree of effective living. Currently major health problems like cardiovascular disease drug and alcohol abuse, cancer etc. are tied significantly to lifestyle.

(d) Socio-economic status: The health of the community is integrally related to its economic status, and its social and political organization. There is little doubt that in many developed countries, it is the economic progress that has been a major factor in reducing morbidity, increasing life expectancy and improving the quality of life. In fact most of the infections and nutritional deficiency diseases, common in developing countries are really 'disease of poverty'.

The other side of the coin is affluence. Ironically it can also contribute to illness as exemplified by the high rate of Ischemic heart disease and diabetes in the upper socio-economic groups.

(e) Health services: Health services include all those personal and community services, including medical care, which are directed towards the protection and promotion of health of the community. The health of the people is strongly influenced by the quality and availability of health services. Health services are concerned on addressing the inequalities in health and tackle the root causes of ill-health in today's society.

1.7.4. Types of Health Behaviour

Kasl and Cobb (1966) made a distinction between 3 different types of Health behaviour. These are:

(a) Health care behaviour: is any activity person performing to maintain or improve their health, regardless of their perceived health status or whether the behavior actually achieves that goal. Researchers have noted that people's health status influences the type of health behavior they perform and their motivation to do it (Kasl & Cobb, 1966a)

These activities can include healthy people's exercising, eating healthful diets, having regular dental checkups, and getting vaccinations against diseases engaging in healthful behavior depends on motivational factors particularly with regard to the individual's perception of a threat of disease, the value in the behavior in reducing this threat, and the attractiveness of the opposite behavior.

(b) Illness behaviour: is any activity people who feel ill undertake to determine the problem and find a remedy. These activities usually include complaining about symptoms, such as stomach pains, and seeking help or advices from relatives, friends, and medical practitioners.

(c) Sick-role behaviour: refers to any activity people undertake to get well after

deciding that they are ill and what the illness is. This behavior is based on the idea that sick people take on a special "role" making them exempt from their normal obligations and life tasks, such as going to work or school. Sometimes sick role behaviors seem to serve emotional functions, as when patients moan or sigh and receive sympathy as a result.

1.7.5. Models of Health Behaviour

The models discussed below are essentially concerned with understanding and predicting health behavior.

(1) Health Belief Model

This was developed by Hochbaum, Kegeles, Leventhal and Rosenstock (Rosenstock, 1974) to predict individual's preventive health behavior. It was subsequently modified by Becker and Maiman (1975) to incorporate sick-role behavior and compliance with medical regimens. Readiness to take action and engage in health related behaviors depends on a number of factors.

The first two are concerned with the extent to which individuals feel vulnerable to a particular illness. This involves whether they feel susceptible to contracting the illness and their thoughts about how severe it is. Besides, susceptibility, severity and vulnerability other factors involved in the model are benefits (potential to be gained from a particular course of action), barriers (degree of physical, psychological or financial distress)\ associated with any form of action) and cues to action (stimuli that trigger appropriate health behavior). Diverse factors such as demographic, ethnic, and social and personality traits may also influence health behavior.

Becker, Maiman, Kirscht, Haefner and Drachman (1977) included yet another factor in their revision of the model, which is the predisposition or motivation of the people to engage in health-related practices. Becker et al. (1977) states that the health belief model is a useful tool in predicting the degree to which individuals are likely to play an active role in their and other's health care.

(II) Locus of Control Model

Rotter (1954) proposed that behavior was a function of the individual's belief that the behavior will lead to reinforcement (expectancy) and how much that reinforcement is liked (reinforcement value). The most important factor in determining generalized expectancies is locus of control. To measure these generalized expectancies, almost a dozen different locus of control measures have been developed.

We have an external locus of control if we believe that we are not masters of our own fate and are subject to the control of outside forces, such as luck or destiny and we are less likely to engage in behaviors that could have a positive effect on our health or lives, believing that it does not matter what we do, fate has already decided for us. However, we have an internal locus of control if we believe that we have the ability influence and determine the features that affect our lives and thus we are much more likely to do things for our self, because we believe that we can have a significant say in our lives.

An increasing number of health researchers have measured locus of control beliefs and have attempted to relate these expectancies to a host of health related behaviors (Oberle, 1991).

(III) Conflict Theory Model

This is a model of personal decision making that attempts to specify the conditions under which individuals will give priority to avoiding subjective discomfort at the cost of endangering their lives, and under what conditions they will make a more rational decision by seeking out and taking into consideration the available medical information about the real consequences of alternative courses of action in order to maximize their chances of survival (Janis & Mann, 1979).

Janis and Mann (1977) have suggested five different patterns of coping with realistic threats and five stages that individuals go through in order to arrive at a stable decision. These five coping patterns of the decision are as follows:

1. Unconflicted Persistence: Ignoring the information about risks and the person continuing to behave in a competent fashion.

2. Uncomplicated change: Accepting without question and adopting whatever course of action is recommended.

3. Defensive Avoidance: Evading the issue by pulling things off, shifting the responsibility to someone else or selectively attending to the sorts of information one wants.

4. Hyper vigilance: Due to a feeling of impending doom the person becomes so panicky that he jumps at the first solution that appears to provide the answer, without considering the other courses of action.

5. Vigilance: The individual carefully considers all the courses of action in an unbiased manner before taking a decision for good reason.

According to Janis and Mann (1977), the fifth pattern 'vigilance' is a prerequisite of decision making. In order to put the vigilance pattern into operation three conditions must be satisfied (1) awareness of serious risks for whatever alternative is chosen, (2) hope of finding a better alternative and (3) belief that there is adequate time fees search and deliberation before a decision is taken.

Having satisfied all these criteria, the decision make is now in a position to proceed through the stages of making a stable decision, and adhering to the decision. The most important feature of the theory is the emphasis on the coping pattern of vigilance and has been successfully used in many studies (Milner, 1994).

(IV) Theory of Reasoned Action

The cardinal principle of this theory is that intention is the best predictor of behaviour (Ajzen & Fishbein, 1980). The theory indicates that intention to perform a behavior is determined by beliefs and attitudes. Ajzen (1985) added another concept to the theory and labeled it the theory of planned action. He suggested that perceived control was an important factor in behavioral intention. It involves beliefs about abilities, opportunities and obstacles to the behavior. The theory has been applied to smoking (Fishbein, 1982), losing weight (Schifter & Ajzen, 1985) and breast self examination (Lierman, Young, Kasprzyk & Benoliel, 1990).

The models and theories of health behavior discussed above represent a significant step forward in understanding why people do an do not seek health care. These models and theories have been applied to a variety of health topics. In the backdrop of the above theories and models the present research is undertaken to study the health behavior among cancer and CAD patients.

1.8. Research Objectives

The present research is systematically designed in accordance with the following main research objectives:

1. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Happiness.

2. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Happiness.

3. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Happiness.

4. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on happiness.

5. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on happiness?

6. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Hope.

7. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on *Agency thoughts* and *Pathways* factors of Hope Scale.

8. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on *hope*, and *agency thought* and *pathways* factors of hope.

9. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on *hope*, and *agency thought* and *pathways* factors of hope.

10. To examine the main effect of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Health behaviour.

11. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on *Health Consciousness* and *Health Carelessness* factors of Health Behaviour.

12. To examine the main effects of gender (male and female), stages of Cancer (I, II, III, IV) and the interaction between gender and stages of cancer on overall scores of Hope.

13. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on *Agency thoughts* and *Pathways* factors of Hope.

14. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Health Behaviour.

15. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on *Health Consciousness* and *Health Carelessness* factors of Health Behaviour.

16. To examine the main effects of gender (male and female) types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on overall scores of Hope.

17. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on *Agency thoughts* and *Pathways* factors of Hope.

18. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Health behaviour.

19. To examine the main effects of gender (male and female), Types of coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between them gender and types of CAD on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

20. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

21. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on *Health Consciousness* and *Health Carelessness* factors of health behaviour.

1.9. Research Questions

The following research questions have been framed for the present study:

1. Do male and female cancer patients differ on Happiness?
2. Do male and female CAD patients differ on Happiness?
3. Do CAD and cancer patients differ on Happiness?
4. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on happiness?
5. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on happiness?
6. Do male and female cancer patients differ on Hope?
7. Do male and female cancer patients differ on *Pathways* and *Agency Thoughts* factors of Hope?
8. Do male and female CAD patients differ on hope?
9. Do male and female CAD patients differ on *Agency Thoughts* and *Pathways* factors of Hope?
10. Do CAD and cancer patients differ on Hope?

11. Do CAD and cancer patients differ on *Agency Thoughts* and *Pathways* factors of Hope?

12. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on *hope*, and *agency thought* and *pathways* factors of hope?

13. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on *hope*, and *agency thought* and *pathways* factors of hope?

14. Do male and female cancer patients differ on Health Behaviour?

15. Do male and female cancer patients differ on *Health consciousness* and *Health carelessness* factors of health behaviour?

16. Do male and female CAD patients differ on Health Behaviour?

17. Do male and female CAD patients differ on *Health Consciousness* and *Health Carelessness* factors of health Behaviour?

18. Do CAD and cancer patients differ on Health Behaviour?

19. Do CAD and cancer patients differ on *Health Consciousness* factor of Health Behaviour?

20. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on health behaviour, health consciousness, and health carelessness?

21. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on health behaviour, health consciousness, and health carelessness?

1.10. Significance of the Present Study

The topic of the present study is: *A study of Happiness, Hope and Health Behaviour among Coronary Artery Disease (CAD) and Cancer patients.*

The research is needed in this area because it is evident from the survey that chronic diseases such as heart diseases and Cancer are the leading causes of death and disability worldwide. India has the highest rates of cancer in the world. Coronary Heart Disease (CHD) is also on the rise in India. Demographic shift in population age-profile combined with lifestyle related increase in cardiovascular risk factors are accelerating CHD epidemic in India (Gupta & Singhal, 1997., Reddy, 1993).

Many chronic diseases affect all aspects of a patient's life (Burish & Bradley, 1983., Maes, Leventhal & DeRidder, 1996., Taylor & Aspinwall, 1990). Immediately after a chronic disease is diagnosed, patients can be in a state of crisis marked by physical, social and psychological disequilibrium. They find that their habitual ways of coping with problems do not work. If the problems associated with a chronic disease fail to respond to coping efforts, the result can be an exaggeration of symptoms and their meaning, indiscriminate efforts to cope, increasingly neurotic attitudes, and worsening health (Cheng, Hui & Lam 1999; Drossman, et al. 2000; Epker & Gatchel, 2000). Anxiety, stress, fear and depression may take over. As stress aggravates so many diseases and conditions (Ackerman, et al. 2002), assistance in managing the demands of daily life may be required. Consequently, health psychologists have increasingly focused on ways to ameliorate these problems.

The present researcher has enough evidence to prefer the present topic of research as compared to others. The importance of this study lies in its potential to add to the past

researches on positive psychology in terms of the personality variables. Insights to be gained from the present study will guide future research and intervention strategies.

1.11. OPERATIONAL DEFINITIONS

Coronary Artery Disease (CAD)

WHO (1982) defined CAD as "impairment of heart function due to inadequate blood flow to the heart compared to its needs caused by obstructive changes in the coronary circulation to the heart."

Coronary artery disease occurs when the coronary arteries (that provide oxygen and nutrients to the heart) become partially blocked. Coronary artery disease (CAD) begins when hard cholesterol substances (plaques) are deposited within a coronary artery. The plaques in the coronary arteries can cause a tiny clot to form which can obstruct the flow of blood to the heart muscle producing symptoms and signs of CAD:

1. Chest pain (angina pectoris) from inadequate blood flow to the heart;
2. Heart attack (acute myocardial infarction), from the sudden total blockage of a coronary artery; or
3. Congestive heart failure
4. Cardiac Arrhythmias

CANCER

Cancer is an umbrella term for more than 100 different but related diseases. Cancer occurs when cells become abnormal and keep dividing and forming more cells without any internal control or order. Normally cells divide to produce more when the body needs them to remain healthy. However if cells keep dividing when new cells are not needed, a mass of extra tissue known as tumor or neoplasm forms, which can be

benign or malignant. Benign tumors are not cancerous and usually can be removed and when removed in most cases do notre-form.in the case of malignant tumors, cancer cells can invade and damage nearby tissues and organs. They can also break away and from a malignant tumor and enter the blood stream or the lymphatic system forming new tumors or metastasis in other parts of the body.

HAPPINESS

Happiness is primarily a subjective phenomenon "for which the final judge is who ever lives inside a person's skin" (Myers & Diener, 1995). It is a state of mind or feeling such as contentment, satisfaction, pleasure or joy.

HOPE

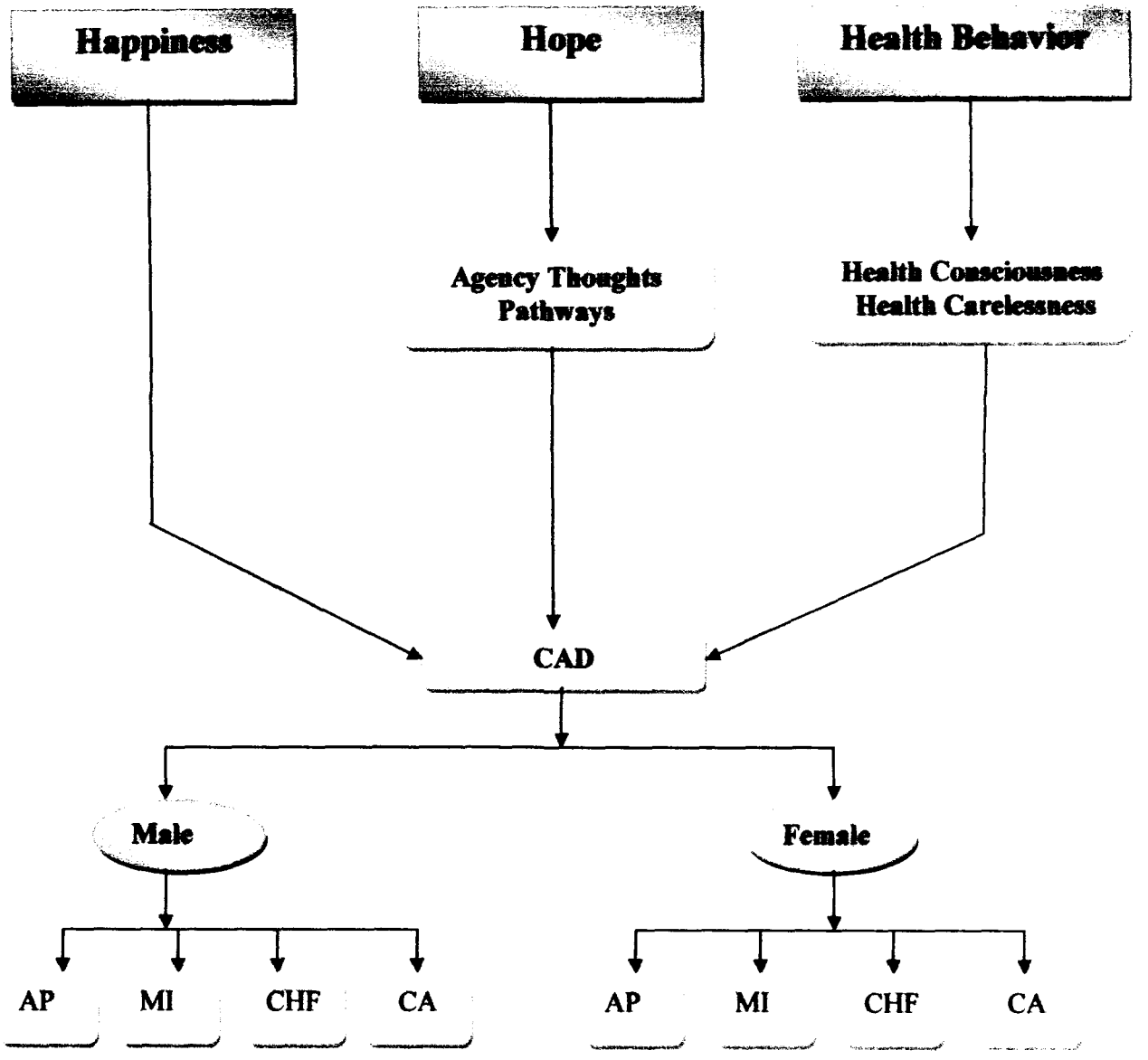
Hope is defined as "the process of thinking about one's goals, along with the motivation to move towards those goals (agency) and the ways to achieve those goals (pathways)" (Snyder, 1995).

HEALTH BEHAVIOUR

Health behaviour, as a general term, covers a wide variety of different kinds of activities observed at the individual level of analysis: Health behaviour, specifically consists of those behaviours that people engage in while well, in order to maintain health and prevent diseases.

Health behaviour is defined as an action taken by a person to maintain, attain or regain good health and to prevent illness. Health behaviour reflects a person's health beliefs. Some common health behaviours are exercising regularly, eating a balanced diet, and obtaining necessary inoculations. (Mosby's Medical Dictionary).

1.12.1. Conceptual Framework



AP - Angina Pectoris

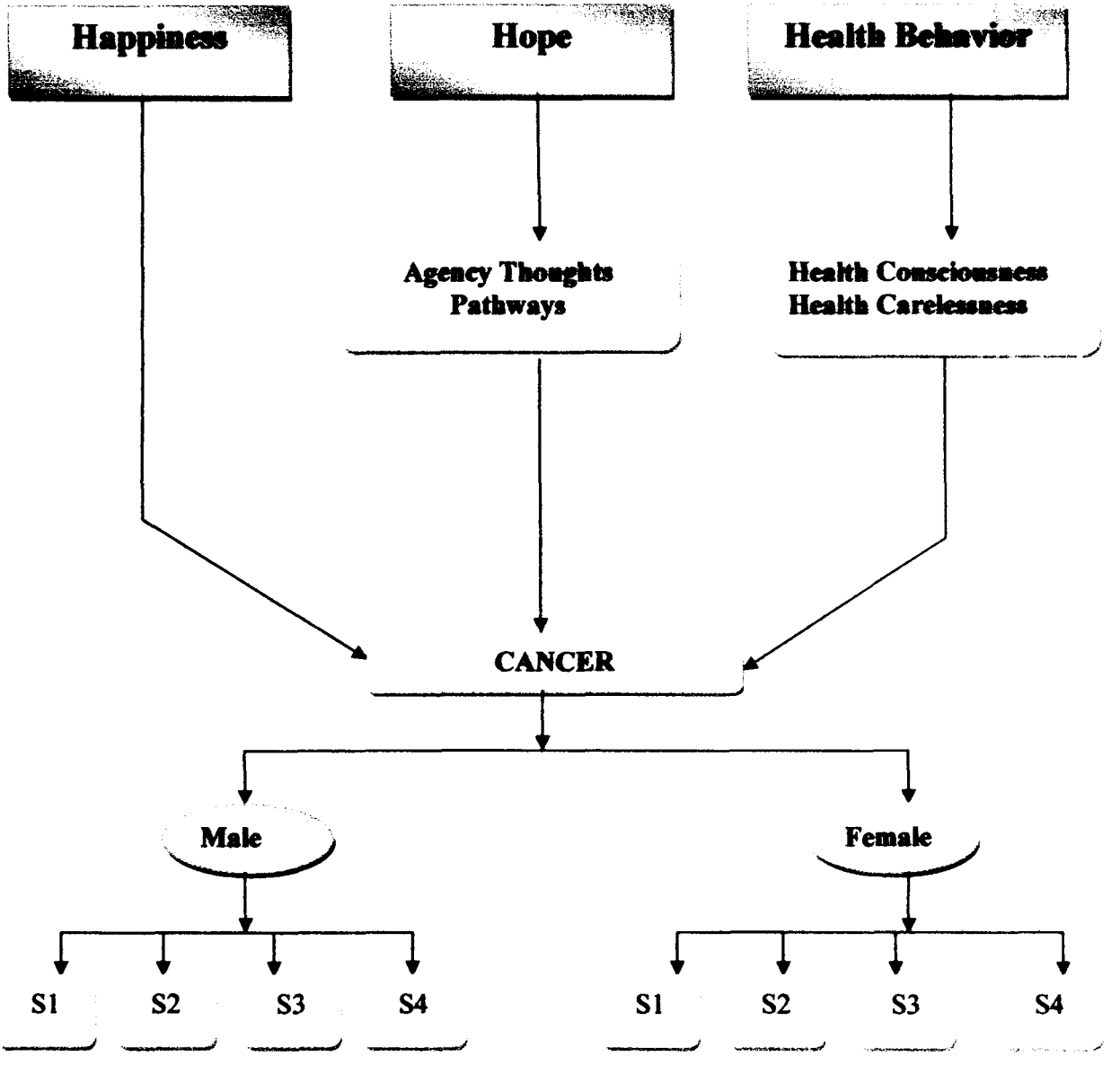
MI - Myocardial Infarction

CHF - Congestive Heart Failure

CA - Cardiac Arrhythmia

Fig. 1.1

1.12.2. Conceptual Framework



S1 - Stage One

S2 - Stage Two

S3 - Stage Three

S4 - Stage Four

Fig. 1.2

CHAPTER TWO

Review of Literature

Chapter Two

REVIEW OF LITERATURE

No research venture is an isolated effort but emerges from the body of knowledge created by research and later becomes part of the body of knowledge to complete the picture and to generate further research.

The present review of literature examines the studies which led to the formulations of the problem of the present study. This chapter attempts to present a brief resume of research findings related to happiness, hope and health behavior among Coronary Artery disease (CAD) and Cancer patients.

2.1. HAPPINESS

Happiness is defined as a state of mind or feeling characterized by contentment, love, satisfaction, pleasure, or joy. Research has found that people who experience Happiness, calmness and other positive emotions are less susceptible to illness as opposed to people who lack positive emotions. An increase in happiness can leads to alleviation of symptoms of depression and can be the building blocks of resilience that helps to combat physical illness. (Fredrickson, 2001).

A study by Chaturvedi, (1991) utilizing interview methodology reported that peace of mind, spiritual and social satisfaction were considered to be very important for two-third of the cancer patients and level of satisfaction was valued higher than level of functioning. Having low income, having a widowed/ divorced status, presence of pain and advanced tumors at presentation have been reported to positively correlate with psychological distress.

Goldbourt, Yaari and Medalie (1993) found that those who were married at midlife were 64% less likely to die of a stroke during the next 34 years than single men. The data was adjusted for other stroke risk factors like socio-economic status, blood pressure and smoking. But the marriage has to be a happy one. Men who reported dissatisfying marriages were just as likely as single men to die of a stroke, the researchers reported at the ASA's international stroke conference.

Frasure-Smith, Lesperance, and Talajic (1993) followed 800 people with stable heart disease including 100 individuals who also suffered from depression or anxiety for 2 years. During the course of the study, 26% of the group with depression experienced a major repeated cardiac event, including an emergency bypass surgery or sudden death from a heart attack. By comparison, 13% of the subjects who were comparatively happier and did not suffer from these psychiatric conditions were at a lower risk.

King, Rowe, Kimble and Zerwic (1998) conducted a study to investigate happiness, coping strategies and functional outcomes in women undergoing Coronary Artery Surgery. The subjects were 55 females undergoing coronary artery surgery. Data were collected in hospital and at 1, 6 and 12 months after surgery. Happiness was related to positive moods and greater life satisfaction, and inversely related to negative moods. Happy people were more likely to accept their situation, and less likely to use escapism. In turn, these coping strategies were inversely related to negative mood.

Waldstein, et al. (2000) conducted a study to investigate the electrocortical and cardiovascular reactivity during positive and negative emotion. Participants were 30

healthy university students. Electroencephalographic (EEG), Blood pressure (BP) and heart rate (HR) responses were assessed while subjects engaged in laboratory tasks designed to elicit happiness or anger. Exploratory analysis revealed that anger eliciting tasks led to increased Blood pressure, faster rate of heart beat, and greater cardiovascular reactivity which led to the conclusion that negative emotions lead to life threatening diseases like CAD and cancer.

Kiecolt-Glaser, McGuire, Robles, and Glaser (2002) in their study provide an excellent review of physiological pathways through which emotions can influence bodily reactions. Negative emotions enhance the production of proinflammatory cytokines, for example, Inflammation which in turn has been linked to certain cancers, Alzheimer's disease, arthritis, frailty, osteoporosis, and cardiovascular disease. Furthermore, negative feelings can contribute to delayed wound healing and infection.

Pai, Mehrotra and Vidyasagar, (2003a) conducted a study on cancer patients undergoing radiation and found that the common sources of distress were spread across five different domains viz. financial, physical, role disruptions, interpersonal and spiritual domain. The most frequently reported distressing thoughts of patients were that they were a burden on their family, their health was worsening and that their illness was a punishment from God.

According to Ostir, Ottenbacher and Markides (2004) older individuals with positive moods and attitudes protected against strokes. For every step up on the researcher's happiness scale, male participant's stroke risk dropped 41 per cent, women's risk dropped 18 percent per happiness unit. Happy people are more likely to get medical care, exercise and stay healthy all protective factors against stroke.

According to Physician Judith Bronner-Huszar (2005) a good giggle makes patient's feel better, not only emotionally but also physically. It temporarily makes the pain, even severe cancer pains disappear. The physician studied a number of cancer cases and came to the conclusion that from a purely physiological stand point laughter creates increased relaxation and oxygenation. Endorphins, the body's homegrown "narcotics" go to work. The body's immune system is stimulated as well. Happiness brings about wellbeing by combating destructive stress, depression, rage and insomnia. It provides an overall liberating effect. It leads to distraction from oneself, from one's physical and other concern's and plays a very beneficial role.

Wardle and Steptoe (2005) conducted a study which examined the impact of happiness on health. 116 middle aged men and 100 women from London were monitored at work and leisure and tested in a laboratory. Blood and saliva samples were taken and they were asked to rate their happiness at different points during the day. The researchers found that there were lower levels in the happier people of fibrinogen, a clotting factor in the blood which increases the risk of a heart attack. One important finding of the study was that the associations between happiness and biological responses were independent of psychological distress.

According to a study by Pressman and Cohen (2005) people who report more positive emotions experience lower rates of chronic illnesses (e.g. T.B., cancer, CAD), symptoms and pain. Moreover, elderly people who live by themselves or with family rather than in retirement homes, positive emotional dispositions are linked with living longer and are also beneficial for recovery from serious diseases.

Kohli, Grover, Grover and Kaur (2005). Conducted a study on myocardial infarction patients (males and females, age, 20-70 years) and assessed the quality of life of patients and their attendants. The findings lead to the conclusion that coping mechanisms and quality of life were significant intervening variables and quality of life was significantly affected after MI in areas of general psychological and emotional spheres.

According to Dombeck (2006) exercise promotes happiness and can have an antidepressant effect. It works because the mind and the body are one interconnected thing and not separate things. When we exercise regularly, we tone our body and metabolism; it regulates stress hormones like cortisol, and promotes the release of endorphins. This in turn leads to lowering the risk of heart diseases.

Ostir, Markides, and Ottenbacher (2006) found in a sample of Mexican-Americans aged 65 and older who were not on hypertensive medication, that positive affect was associated with lower blood pressure. After adjusting for relevant risk factors, positive affect continued to be significantly associated with lower diastolic blood pressure and hence lower risk of heart disease.

Iqbal and Bhatnagar (2007) investigated role of stress in two forms of heart diseases, that is, angina pectoris and myocardial infarction group. The results revealed that myocardial infarction group scored higher than the angina pectoris group on stress it shows that stress plays an important role in the development of myocardial infarctions group. That is why stress was experienced more by this group.

Sokhey and Jaspal (2007) conducted a study on 150 CAD patients to find out the relationship between family environment and mental health of cardiac patients and

normal controls. The results revealed that all areas of family environments except for control and conflict are positively correlated with general well-being and negatively with neuroticism. Thus it can be concluded that because of their illness CAD patients seek more support, cohesion from their families and supportive family environment enhances mental health and less behavioral problems whereas high conflicts in family are related to depression anxiety and hopelessness among cardiac patients.

Dubey and Agarwal (2008) studied quality of life in patients with chronic illnesses like Cancer, Heart diseases and Diabetes. The study led to the conclusion that perception of control and optimistic outlook in chronically ill patients make them perceive better psychological quality of life in their lives. A strong sense of control and social positive thoughts and plans for future projects, provide meaning to life even under most adverse circumstances, such as facing life threatening diseases.

Tang et al. (2008) found that an induction of depressed mood resulted in higher pain ratings at rest and lower pain tolerance, whereas induced happy mood resulted in the opposite pattern.

Chida and Steptoe (2008) conducted a meta-analysis of the prospective studies examining the association between positive well-being and mortality in both healthy and diseased populations. Positive psychological well-being was related to lower mortality in both healthy and diseased populations, independently of negative effect. Positive moods such as joy, happiness, and energy, as well as characteristics such as life satisfaction, hopefulness, optimism, and sense of humor were associated with reduced risk of mortality in healthy populations, and predicted longevity, controlling for negative states. Positive states were associated with reduced death rates in patients with HIV and renal

failure. In the healthy population studies, higher quality studies yielded evidence of greater protective effects. In the disease population studies the protective effects were greater when baseline disease and treatment were controlled.

Siahpush, Spittal, and Singh (2008) found that happiness and satisfaction might lead to better health. The researchers looked at data form an Australian Survey conducted in 2001 and 2004. Nearly 10,000 adults responded to items about health indicators including the presence of long-term limiting health conditions and physical health. The results found out that happiness and life satisfaction at the baseline survey were both associated with (1) excellent good or very good health, (2) absence of long term limiting health concerns, (3) higher levels of physical health 3 years later.

Happiness and optimism may play a role against breast cancer while adverse life events can increase the risk of developing the risk, according to a study by Peled Carmil, Siboni-Samocha and Shoham-Wardi (2008) at Ben-Gurion University in Israel. In the study, the researchers questioned women about their life experiences and evaluated their levels of happiness, optimism, anxiety, and depression prior to diagnosis. Researchers used this information to examine the relationship between life events, psychological distress and breast cancer among young women. A total of 622 women between the ages of 25 and 45 were interviewed. 255 breast cancer patients and 367 healthy women. The results showed a clear link between outlook and risk of breast cancer with optimists 25% less likely to have developed the disease; conversely women who suffered two or more traumatic events had a 62 per cent greater risk.

Steptoe, O'Donnell, Badrick, Kumari and Marmot (2008) of University College London, conducted a study on 2873 healthy men and women between the age

of 50 and 74. It was found that those who reported upbeat moods had lower levels of cortisol – a stress hormone. Over the course of one day the participants collected six samples of their saliva so that the researchers could measure their cortisol levels, after taking each sample participants recorded their current mood – the extent to which they felt "happy, excited or content". The researchers also measured participant's level of C-reactive protein and Interleukin b, two markers of inflammation in the body. They found that the subjects who reported happier moods had lower average cortisol level and Interleukin b – even when factors such as age, weight, smoking and income were taken into account. These findings suggest another biological process linking happiness with reduced cardiac and cancer vulnerability.

Tindle, et al. (2009) conducted a study on optimism, cynical hostility and incident coronary heart disease and mortality in women. The researchers looked at rates of death and chronic health conditions among participants of the women's health initiative study, which has followed more than 100,000 women ages 50 and over since 1994. The researchers found that those with an optimistic outlook had a 90% lower risk of suffering heart disease and were 14% less likely to die over the 9 years the study took place than their pessimistic peers. Optimists also were less likely to have high blood pressure, diabetes or smoke cigarettes. The most cynical hostile women had higher rates of CHD than optimistic women (56 versus 44) and total mortality (66 versus 46), these women also had a higher hazard of cancer related mortality.

Shirai, et al. (2009) conducted a study on perceived level of life enjoyment and risks of cardiovascular disease incidence and mortality. Subjects were 88175 Japanese men and women 40 to 69 years of age who were free of cardiovascular

disease at baseline and followed up for a median of 12 years. Data was obtained through self administered questionnaires. The results revealed that a lower perceived level of life enjoyment was found to be associated with higher risks of cardiovascular disease incidence and mortality suggesting a protective role of positive psychological conditions and happiness on cardiovascular disease.

Stewart, Rand, Muldoon and Kamarck (2009) conducted a study on 331 healthy adults over 3 years. He found that initial levels of depression, anxiety and hostility led to higher levels of Interleukin B (harmful protein responsible for diseases like cancer and CAD) in 3 years. Whereas happier, more purposeful people were at a lower risk for CAD and cancer because their blood had fewer receptors for the damaging protein.

Henry and Smith (2009) conducted a study on unhappy marriages and women's heart disease risk. The researchers looked at 276 couples, married an average of 20 years ranging from 40 to 70 years. The couples filled out questionnaires reflecting quality of marriage, emotional support, happiness and communication among patients. The researchers found that women in unhappy marriages were more likely to feel depressed and had more risk factors for metabolic syndrome that can lead to heart disease.

Lane, Reiss, Peterson, Zareba and Moss (2009) conducted a study to determine whether the circumstances preceding an arrhythmic event differed from those preceding a prior control occasion in patients with Long QT Syndrome (LQTS), a well characterized genetic disorder that puts affected individuals at risk for sudden cardiac death.

38 patients with LQTS completed a "care cross over interview" in which each patient served as his/her own control by reporting on circumstances preceding an arrhythmic event and preceding a control occasion. The interview was conducted 17 months after the cardiac event and control occasion. The results revealed that during the 24 hour period preceding the cardiac event compared to the day before the control occasion, psychological stress was elevated, peak happiness was reduced and peak exertion was not significantly different. It was thus concluded that happiness is associated with a reduction in the 24 hour risk of cardiac events in patients with LQTS, with stress having an opposite effect.

Davidson, Mostofsky and Whang (2010) conducted a study on happiness and its impact on CAD. Over a period of 10 years Dr. Davidson and her colleagues followed 1,739 healthy adults (862 men and 877 women) who were participating in the 1995 Nova Scotia health Survey. At the start of the study in 1995, trained nurses assessed the participants' risk of heart disease and with both self reporting and clinical assessment, they measured symptoms of depression, hostility, anxiety and the degree of expression of positive emotions which is known as 'positive affect' and then again the dispositions of 1739 volunteers were evaluated in 2005. The researchers found that over the 10 year period, increased positive affect predicted less risk of heart disease by 22% per point on a 5 point scale. Participants with no positive affect were at a 22% higher risk of Ischemic heart disease (heart disease or angina) than those with a little positive affect, who were themselves at 22% higher risk than those with moderate positive affect. The findings led to the conclusion that people

who are naturally happy appear to have a lower risk of developing heart disease or dying from heart attacks.

2.2. HOPE

The increase of chronic illnesses and life expectancy creates an enormous need to provide palliative care to people who are terminally ill. An integral component to such palliative care is the manner in which such individuals are coping with what is often, though not always a distressing process. In this regard researchers have examined numerous ways in which people can cope with the stress of dying. One such human strength that is implicated in coping is hope. When hope is present people can identify meaningful and realistic desired outcomes, and harness the resources for pursuing those outcomes. Dying patients are likely to use such active coping if they are hopeful that their strategies will be effective in reaching their desired goals.

Schmale and Iker (1970) conducted a study on hopelessness as a predictor of cervical cancer. The researchers selected a group of healthy women considered biologically predisposed to cancer of the cervix. Criteria for hopelessness prone personality and feelings of hopelessness were applied to interview data and the predictions were matched with the pathological reports of cone biopsies and were found to be statistically predictive of cancer and no cancer.

A controlled study conducted by Doongaji et al., (1985) examined probable association between malignancy and psychosocial stress. Information about life change events was elicited over a period of three years rather than during the year just preceding

the illness. The life change stress scores were high in the third year and in the year preceding the illness in the index group vs. the control group.

Rideout and Montemuro (1986) conducted a study to investigate the relationship among the psychosocial variables of hope and morale, the level of function and physiological status of patients with chronic heart failure. The participants were 23 patients with chronic heart failure. The findings suggested that patients who are more hopeful maintain their involvement in life regardless of physical limitations imposed by their heart failure.

Herth (1989) investigated the relationship between hope and coping in 120 adult patients undergoing chemotherapy in hospital, outpatient and home settings. The study found a significant relationship between level of hope and level of coping among subjects in all 3 settings.

McGill and Paul (1993) investigated the relationships and differences in hope and functional status in elderly people with and without cancer. The within cancer group was a sample of 86 patients and without cancer group was a sample of 88 people who had never been diagnosed with cancer. The results of this study indicated that declining physical health is a threat to hope however age, gender or a diagnosis of cancer are not.

Hirth and Stewart (1994) carried out a study to explore whether social support and hope contributed to effective coping in adults waiting for cardiac transplantation. 31 Individuals in 4 Canadian transplant centers completed questionnaires regarding social support, hope and coping. Findings suggested that hope was the only variable that contributed to coping effectiveness.

Everson, et al. (1996) examined the relationship among low, moderate and high levels of hopelessness, all cause and cause-specific mortality and incidence of Myocardial Infarction (MI) and cancer in a population based sample of middle-aged men. Participants were 2428 men. The participants were followed up for a period of 6 years. The results revealed that moderately and highly hopeless men were at significantly increased risk of all-cause and cause-specific mortality relative to men with low-hopelessness scores. High hopelessness also predicted incident MI and moderate hopelessness was associated with incident cancer. It was thus concluded that hopelessness is a strong predictor of adverse health outcomes independent of depression and traditional risk factors.

Ballard, Green, Mcaa and Logsdon (1997) carried out a study to compare levels of hope in patients with newly diagnosed and recurrent cancer. 20 newly diagnosed patients with cancer and 16 patients with recurrent cancer (mean age = 56 years) were taken. Majorities of the patients were married and had a religious affiliation. Contrary to expectations patients with newly diagnosed and recurrent cancer died not differ in regard to their level of hope. However, significant differences were found related to the type of hope utilized. Married patients and male patients experienced higher levels of hope. It was concluded that patients with newly diagnosed cancer use their treatment and nurses, physicians and other health care professionals as a source of hope and support. Patients with recurrent cancer reported drawing hope from faith.

Fehring, Miller and Shaw (1997) conducted a study to determine the relationships among hope, spiritual well-being, religiosity, depression and other mood

states in elderly people coping with cancer. The sample consisted of 100 elderly people with diagnosis of cancer. The results revealed a consistent positive correlation among hope, religiosity and other positive mood states. A consistent negative co-relation among depression, religiosity and other mood states existed. It was thus concluded that religiosity and spiritual well-being are associated with hope in elderly people coping with cancer.

Chandra, Chaturvedi and Channabasvanna (1998) investigated the role of psychological well-being (e.g. Family support, positive feelings of hope, optimism and coping) among cancer patients receiving radiotherapy. The impact of cancer on the psychological well-being of newly diagnosed cancer patients before and during the course of radiotherapy was assessed in 70 consecutive cancer patients. Most of the patients were illiterate and from a lower socio-economic group. The results revealed that during the course of treatment there was a decrease in the well-being scores on some dimensions such as perceived family and primary support group. Improvements were seen in the dimensions of positive feelings like hope, optimism, coping, social support other than the family and spiritual well-being.

Irvin, Snyder and Crowson (1998) conducted a study to examine the effect of hope on coping with cancer by college women. The relations of dispositional hope to various self reported cancer-related coping activities were examined in 115 college women. The results revealed that dispositionally high V/s low hope subjects were more knowledgeable about cancer. Additionally high v/s low hope women reported more hope related coping responses in 4 separate phases of cancer (prevention/risk, detection, temporal course and impact) and these relationships remained when shared

variances related to previous academic achievement, knowledge about cancer, experience with cancer and negative affectivity were removed.

Heszen-Niejodec, Gottschalk and Januszek (1999) investigated the role of anxiety and hope during the course of three different medical illnesses: hypertension, myocardial infarction and cancer. The purpose of the study was to explore emotional reactions to different kinds of illnesses and changes of these emotions over time. 259 subjects were taken who were medical patients suffering from; primary hypertension, myocardial infarction and cancer of the lungs or pharynx. The study was longitudinal and consisted of 3 phases. The first was performed immediately after the patient was diagnosed; the second was done 5 weeks later and the third about half a year after the onset of illness. The patient's emotional state was evaluated with the Anxiety and the Hope scales. The results revealed that in the hypertension group, both anxiety and hope were slightly elevated immediately after diagnosis, and then slightly lowered. The Myocardial group exhibited a low level of these emotions in the first phase, an increase in the second and then a little decrease, cancer patients manifested high anxiety and relatively low hope in the initial phase, then a decrease in anxiety and an increase in hope later.

Rustoen and Wilklund (2000) investigated the role of hope in newly diagnosed patients with cancer. 131 Norwegian patients with newly diagnosed cancer were studied. Most of the patients were found to be hopeful or moderately hopeful. The variable with the single most contribution to hope was whether the patient lived alone. The results revealed that younger people in particular experienced less hope when living alone.

Stanton, Danoff-Burg and Huggins (2001) conducted a study on hope and coping strategies as predictors of adjustment in breast cancer. The participants were 70 women with stage I or II breast cancer. Consonant with previous studies the results revealed that coping through active acceptance /hope at diagnosis predicted more positive adjustment across time and avoidance oriented coping predicted greater fear of cancer reoccurrence over and above participant age. It was also found that coping through turning to religion would be more effective for less hopeful women.

Rustoen, et al. (2003) conducted a study to find out how sociodemographic and health-related variables were related to hope. The level of hope among 4000 Norwegian adult citizens, randomly drawn from the national register was assessed via questionnaires. The results showed that participants who were satisfied with their health reported higher levels of hope. Participants who had a chronic disease (eg. CAD, AIDS, CANCER) reported significantly higher hope scores compared to those without a chronic disease. In this study, an individual's subjective evaluation of his/her health was the most important health related predictor of hope.

Evangelista, Doering, Dracup, Vassilakis and Kobashigawa (2003) conducted a study to investigate the role of hope on mood states and quality of life in heart transplant recipients. The participants were 50 women from single heart transplant clinic. The patients had undergone heart transplantation prior to study participation. Patients reported experiencing moderately low hope, high anxiety and hostility. The study supports the strong association between hope, mood states and Quality of life. The finding suggests that interventions directed at fostering hope among heart transplant recipients may be the key to improving their Quality of life.

Felder and Barbara (2004) conducted a study on hope and coping in patients with various cancer diagnoses. Four groups of patients with gastrointestinal, head/neck, breast or hematological malignancies were taken for study (total = 183 patients). The findings demonstrated that the level of hope was high and was positively related to coping in patients with cancer, regardless of gender, age, marital status, education or site of malignancy.

Pahwa, Babu and Bhatnagar (2005) qualitatively explored emergent themes in a sample of terminally ill cancer patients. The following seven themes emerged: concerns about physical pain, anxiety and depression (related to unfulfilled dreams and concerns about the welfare of the family), body- image issues, social withdrawal, disease viewed as bad karma, desire for hastened death and hope.

Rustoen, Howie, Eidsmo and Moum (2005) investigated the role of hope in patients with heart failure and the influences of demographic and health-related variable on hope. 93 patients with heart failure and 441 healthy control subjects were studied, mean age was 75 years. The findings suggested that after controlling for demographic variables patients with heart failure had significantly higher global hope scores than control subjects. It was concluded that adaptation to a life, threatening illness may induce a "response shift" that causes such patients to have more hope than the general population.

Argaman, Gidron and Ariad (2005) carried out a study on hopelessness and cancer progression. The researchers proposed a psychoneuroimmunological (PNI) model that links helplessness – hopelessness (HH) with cancer progression via brain and systemic components (Interleukin IB). The study led to the conclusion that

feelings of hopelessness leads to elevated Interleukin IB (harmful protein responsible for diseases like CAD and cancer) which leads to cancer progression whereas positive feelings of hope/optimism minimizes the activity of Interleukin IB and thus have an positive influence on cancer.

Singh (2006) studied psychological aspects of pain in cancer patients and found that people suffering from life threatening disease like cancer come across different physical and psychological stressful experiences. More so cancer pain patients are the most vulnerable group to psychopathological complications. The study lead to the conclusion that psychological variables which are a consequence of pain often propose to be the sole cause of pain without addressing to medical factors, and psychological interventions such as psychotherapy and cognitive behavioral therapy play an important role in managing cancer pain.

Jones, Rodin, Huggins and Rydall (2007) conducted a study on symptomatic distress, Hopelessness and the desire for hastened death (DHD) in hospitalized cancer patients at varying stages of disease. 224 cancer patients completed questionnaires assessing pain, physical symptoms, depression, hopelessness and DHD. There was significant physical and psychological distress in this sample with a mean of 9 physical symptoms reported by each patient. Hopelessness and the stage of disease were the only significant Independent predictors of DHD and their interaction was associated with increased DHD.

Schreirer, Sanatani and Stitt (2007) conducted a study on hope among cancer patients. 50 cancer patients (29 curative Intent; 21 palliative) were surveyed before consultation. The patient's level of hope was assessed and they were asked to indicate

their highest priority hopes. This survey was reported 4 months after initial assessment. The results revealed that highest priority initial hopes were: Cure, other positive health outcomes, emotional well-being, return to normalcy and interpersonal goals. There was a significant increase in the level of hope over time in curatively treated patients, but none in the combined analysis.

Ratajska (2008) conducted a study on Hope in patients with congestive heart failure. The subjects were 18 people with congestive heart failure, 60 cardiological patients without heart failure, and 60 healthy persons. The results revealed that the level of hope in patients with congestive heart failure is much higher than the level in cardiological patients without heart failure, healthy persons come is the middle.

Hendricks-Ferguson (2008) conducted a study to examine hope and spiritual well being, with its 2 dimensions of religious well-being and existential well-being, as they relate to age and gender among adolescents with cancer. A total of 78 adolescents with a diagnosis of cancer were enrolled from 2 pediatric oncology clinics. Results revealed that middle adolescents (15-17 years of age) reported higher religious well-being than late adolescents (18-20 years of age) Middle adolescent girls were more hopeful and reported higher spiritual well-being than boys.

Awasthi and Mishra (2008) conducted a study on chronic illness beliefs of cancer women (n=100) regarding causation, consequences, Controllability, and outcomes of their health problems. The results revealed that uneducated and rural patients tended to hold a strong belief in supernatural causes than educated and urban subjects. Belief in individual causation was found to be positively related with interpersonal, physiological and psychological consequences of the disease. Perhaps this finding was found due to the

psychological impact of cancer, which is obviously devastating. Some patients cope with the challenges of the disease relatively calmly and constructively, whereas others particularly those with pre-existing psychological difficulties, often go into an emotional tailspin. In the present study, cancer patients held a strong belief in doctors' control. They believed that doctors can control their illness. This belief tended to reduce the interpersonal and psychological consequences as well as feeling of pain and severity of the disease. The belief in such controls led to a strong hope for a better health status and life. Even patients at the advanced stage of cancer are found to be hopeful of complete cure.

Hassan-Ohayon, Kravetz, Levy, Yaniv and Roe (2009) investigated the mediating role of hope between religiosity and coping for women diagnosed with breast cancer. Israeli Jewish women with breast cancer (n=233) completed the Mental adjustment to cancer scale, the systems of Belief inventory, and the Hope scale. The results found hope to be a mediator between religiosity and coping. It can be concluded that special attention should be given to the role of hope for religious patients because it increases the positive effects of religion in coping with cancer.

Eliott and Olver (2009) conducted a qualitative study on hope, life and death. 28 patients with cancer believed to be within weeks of their death were asked to talk, about hope. Responses were transcribed and discursively analyzed, with 3 versions of hope each of which connected hope and life, Identified hope as essential for life, and hope(s) changing during (or in)life. Hope for cure was common. Rather than death denying, patient's hope appeared life affirming, functioning to value patients, their lives and connection with others.

Rustoen, et al. (2010) conducted a study in a community based sample of cancer patients, to evaluate the relationships between demographic and clinical characteristics, health status , hope, psychological distress and life satisfaction and evaluate whether hope mediated the relationship between psychological distress and life satisfaction. The participants were primarily women with breast cancer (N=194). The results revealed that 60% of the varience in life satisfaction, poorer health status, lower hope and higher psychological distress were significantly related to lower satisfaction with life. Hope was found to mediate the relationship between psychological distress and health status such that the direct association between distress and health status was no longer significant with hope in the model. These data suggest that hope is an important resource for oncology patients that impact their quality of life.

From the studies cited above it may be concluded that hope may be an important coping mechanism that clinicians need to consider when they try to help patients reduce the psychological distress associated with cancer and CAD.

2.3. Health Behaviour

It is well known that a patient's heath bahaviour will affect the survival outcome of disease. Behaviours such as stopping smoking, moderation of alcohol intake, healthy eating and physical activity can increase survival rates of patients with serious illnesses such as cancer, heart disease and Type 2 diabetes.

Mulhern et al. (1995) studied the health behaviors among survivors of childhood cancer. The researchers surveyed 110 parents of long-term survivors ranging in age from 11 years to 17 years and 40 adult long-term survivors of childhood cancer ranging in age from 18-29 years. The results revealed that the young adult survivors appeared to practice

more healthy lifestyles when compared with age peers in the general population. Surprisingly demographic factors were not associated with healthy behaviors. A majority of both patients and adult survivors believed that it was important for the young survivors to remain healthy compared with most other people, suggesting that this group may be receptive to adopting maintaining healthy behaviors.

Nord and Brorsson (1995) conducted a study to see the Health Related Quality of Life (HRQL) among patients with coronary artery disease (CAD). The subjects were 800 CAD patients and 2500 normal subjects from the general Swedish population. The results showed that HRQOL among CAD patients is generally lower than in the general population. Female CAD patients scored lower than male CAD patients. The size of the difference in HRQOL was approximately the same irrespective of age among female CAD patients compared to the general population sample whereas the difference was much greater among men with CAD aged 55-64 and 65-74 than it was among males with CAD aged 75-84.

Jarsma et al. (1998) conducted a study on self care behaviour of patients with heart failure. Data were collected from 128 heart failure patients (mean age 72 years) during a hospital stay and at 1, 3 and 9 months follow up. Results showed that education enhanced self-care behavior significantly at 1 and 3 months follow-up. Patients in both the intervention and control groups described limitations in knowledge, judgment/decision making skills. It can be concluded that supportive educative intervention is effective in enhancing heart-failure related self care behaviours early after discharge.

Hasuo, et al. (1998) conducted a study on smoking behavior and cognition for smoking cessation among Japanese men after the diagnosis of cancer. Subjects were 144 patients with head and neck cancer and 104 patients who were current or ex-smokers at time of diagnosis. The results revealed that among 164 patients who were smokers at the time of diagnosis, 59 reported that they continued to smoke after the diagnosis of cancer. Stomach cancer patients had significantly higher continuance rate of smoking than head and neck cancer patient and patients is fifties had the highest continuance rate of smoking in the study participants. Among 105 patients who were abstinent 79% had stopped smoking within 6 months after the diagnosis of cancer. Interest in smoking cessation among the current smokers was very high.

Campbell, et al. (2001) conducted a study on health behavior changes occurring after colon cancer. The researchers found that a cancer diagnosis leads to lifestyle (nutrition and exercise) changes and these patients used support groups more frequently.

Emmons, Whitten and Li (2002) found that the smoking rates of survivors of childhood cancer were lower than the general population and that once smoking was initiated survivors of cancer were more likely to quit.

Maunsell, Drolett, Brisson, Robert and Deschenes (2002) completed a follow up of 250 women with newly diagnosed non metastatic breast cancer. At 12 months, 41% reported dietary changes after diagnosis with a decrease in meat (77% and an increase in fruit and vegetable intake (72%). The study led to the conclusion that there is a high frequency of dietary changes after a breast cancer diagnosis and these dietary interventions lead to positive health outcomes.

Shen, Creary and Myers (2002) analyzed the independent and mediated contributions of personality, coping, social support and depressive symptoms to physical functioning/health outcomes among patients in cardiac rehabilitation. The results showed that after controlling for age, illness severity, baseline physical functioning and other psychosocial correlates, optimism and social support still significantly predicted better post treatment physical functioning.

Patterson et al. (2003) carried out a study to see whether a cancer diagnosis can lead to health related life style changes in diet, exercise and supplement use. The survey was based on telephone interviews with 356 adults who had been diagnosed with breast, prostate or colon cancer. These patients were interviewed up to 2 years after diagnosis. Overall, the researchers found that lifestyle changes were very common after a cancer diagnosis. 50% of those surveyed started taking new dietary supplements, 40% made dietary changes and 20% started a new physical activity. The vast majority of patients reported that these lifestyle changes improved their health and well being. Older patients (those over 60) were about half as likely to make dietary changes after a cancer diagnosis, female patients were twice as likely to take new dietary supplements, and those undergoing multiple treatments were two to three times more likely to make changes in diet. More educated patients were more likely to make dietary changes.

Blanchard et al. (2003) conducted a study to examine lifestyle behaviours after a cancer diagnosis and medical and demographic influences on such changes. The subjects were 352 adult cancer survivors who completed a survey including medical, demographic and lifestyle behavior change questions. The results showed that since cancer diagnosis 46% of smokers quit smoking, 47% improved their dietary habits, and 30% exercised

less. Adult cancer survivors who changed their lifestyle behaviors varied, depending on various demographic and medical variables and physician recommendation.

Collelea and Kathryn (2004) conducted a study to see the effect of peer support in cardiac recovery. The research findings suggest that peer support a form of social support, is a viable and potentially sustainable mechanism to put in place during transitional life events such as recovery from cardiac surgery. Peer support infuses feelings of optimism and hope in these patients and leads to improvement in their health behaviour.

Pinto and Trunzo (2004) conducted a study on health behaviours during and after a cancer diagnosis. The researchers searched MEDLINE and psychoinfo computerized databases for studies reporting prevalence and interventions targeting smoking, alcohol use, diet and exercise published in English since 1980. The researchers found that a cancer diagnosis causes cessation of smoking and alcohol it leads to healthy lifestyle behaviours, among cancer patients.

Martha et al. (2005) conducted a study to determine the effect of beahvioural management on health related quality of life (HRQOL) in patients with heart failure. Participants (N=116) were randomly assigned to one of 2 groups: Usual care for heart failure (n = 58) and the 15 week behvioural management program (n=58). The participants at baseline and 10 and 16 months. The results revealed that intervention patients showed significantly improved self reported disease specific HRQOL overtime compared to control patients.

Franks, Rook and Franklin (2006) conducted a study to examine spouses' provision of health related support and control as predictors of health behaviour and

mental health among patients participating in cardiac rehabilitation (N-94 couples). Cross-sectional analysis revealed that spouses support was positively associated with patients health care behaviour. Prospective analysis of change over 6 months (N=65 couples) revealed that spouses' support predicted increased patient mental health, whereas spouses' control predicted decreased patient healthcare behaviour and mental health.

Awasthi, Mishra and Shahi, (2006) examined illness beliefs and health seeking behavior of educated, uneducated, rural and urban women suffering from the cancer of cervix in northern India. The findings revealed that individual and psychosocial causes were more strongly represented in the belief system of patients than environmental or supernatural causes. The perceived consequence of illness was negatively correlated with the degree of social support available to patients.

Wofford, Croft, Greenlund and Labarthe (2007) investigated the changes in diet and physical activity of U.S. adults with heart disease following preventive advice. The researchers conducted a telephone based survey of 7392 people with coronary artery disease. The results revealed that patients who were advised by their physicians to make the required health care and lifestyle changes were somewhat more likely to engage in healthcare behaviours than those who were not advised. The results also revealed that these changes led to improved cardiac rehabilitation.

According to Colditz (2007) health care is the most important factor that can prevent cancer. Exercise and a healthy diet can reduce a person's chances of getting cancer. Basic behaviour changes (e.g. to quit smoking, lose excess weight etc.) would have a tremendous impact on the incidence of the most prevalent types of cancer – lung,

breast, prostate and colon cancer. According to him "50 percent of cancer incidence could be prevented if we act today on what we already know".

Whooley et al. (2008) conducted a study on 1017 outpatients with stable coronary artery disease followed up for an average of 4.8 years. The researchers found that patients with depressive symptoms had a 50 percent greater risk of cardiovascular events than participants without depressive symptoms and higher levels of physical activity, exercise and change in health behaviours were associated with a reduction in the strength of association between depressive symptoms and cardiovascular events.

Pischke, Scherwitz, Weidner and Ornish (2008) conducted a study on long-term effects of lifestyle changes on cardiac variables among coronary heart disease patients. The subjects were 38 CAD patients who were studied at baseline, 1 year and then 5 years later. By the end of 5 years the results revealed that health behviour and lifestyle changes led to beneficial effects on coronary factors (e.g. weight, blood pressure, cholesterol, clinical, events, low density lipoprotein).

Demark et al. (2008) conducted a survey of 1667 survivors of breast and prostate cancer (patient's diagnosed up to 6 years previously) to study the prevalence of health behavior among adult patients with cancer. The results reflected a high prevalence of healthy behaviors among the respondents. 80% were interested in health education programs and 57% wanted such information at diagnosis or soon after. However younger survivors (age <65 years) were more interested in such programs that older respondents.

Costanzo, Ryff and Singer (2009) carried out a study to examine whether cancer survivors showed impairment, resilience or growth responses relative to a sociodemographically matched sample in 4 domains: mental health and mood,

psychological well-being and spirituality. Participants were 398 cancer survivors and 796 matched responses with no cancer history. Psychosocial assessments were completed in 1995-1996 and 2004-2006. Findings indicated that cancer survivors demonstrated impairment relative to the comparison group in mental health, moral and some aspects of psychological well being. Longitudinal analysis spanning pre and post diagnosis clarified that mental health declined after a cancer diagnosis.

Hawkins et al. (2010) conducted a study on health related behaviors changes after cancer. The researchers analyzed from a cross-sectional survey of 7,903 cancer survivors at 3, 6 and 11 years after diagnosis. The results revealed that of the 15 behaviours assessed, survivors reported 4 positive and 1 or 0 negative behaviour changes. Positive changes correlated with younger age, fear of recurrence, greater education, breast cancer, longer time since diagnosis and spiritual well-being while negative changes correlated with younger age, being widowed, divorced or separated and lower physical and emotional health.

CHAPTER THREE

Methodology

Chapter Three

METHODOLOGY

The present investigation was conducted to examine *"A Study of Happiness, Hope and Health Behavior among Coronary Artery Disease (CAD) and Cancer Patients."* The concept of methodology includes four aspects, namely, subjects, tools, procedure and data analysis. These four aspects of overall research methodology can be thought of as forming a case for execution of the present study. Additionally, the methodology provides detailed information about how the subjects were selected for the study, which procedure was used in the study, the description of the participants, and the measures used.

3.1. Research Design

The main function of research design is to provide information for the collection of relevant evidence with minimal expenditure of effort and time. It depends mainly on the research objectives and questions. In order to answer research questions set in chapter one, the present investigator had adopted analysis of Variance (two-way ANOVA) in which 2x2 and 2x4 factorial design was made to do proper analysis.

3.2. Subjects

The subjects for the present study consisted of 400 patients. Of these, 200 were Coronary Artery Disease (CAD) patients and 200 Cancer patients. Patients were drawn from the Out Door Patients (OPD) of the Chhatrapati Shahuji Maharaj Medical University, Lucknow Cancer Institute and Nishat Hospital, Lucknow (U.P. INDIA) and Jawahar Lal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh. (U.P.INDIA).

The sample was divided in terms of the variable of gender, i.e., males and females. Under the cancer group, there were 100 males and 100 females. The age range of the patients was from 50-70 years.

The sample was further divided on the basis of different stages of cancer. The stage of a cancer is a description of the extent, the cancer has spread. The stage often takes into an account of the size of a tumor, how deeply it has penetrated, whether it has invaded adjacent organs, how many lymph nodes it has metastasized to (if any), and whether it has spread to distant organs. Staging of cancer is the most important predictor of survival and cancer treatment is primarily determined by staging. The sample was further divided into 4 stages of cancer. Stage I in which cancers are localized to one part of the body, stage II in which cancers are locally advanced, stage III where again the cancers are locally advanced and stage IV in which cancers have often metastasized or spread to other organs or throughout the body. There were 25 males and 25 females in each group. The subjects taken for the study had cancers of the lung, breast, prostate, bladder and skin.

The Coronary Artery Disease (CAD) group consisted of 100 males and 100 females. The sample was further split on the basis of the different types of Coronary Artery Disease i.e. Angina Pectoris, Myocardial Infarction, Cardiac Arrhythmia and Congestive Heart Failure. There were 25 males and 25 females in each group.

Fig. 3.2.1. Break-up of Subjects

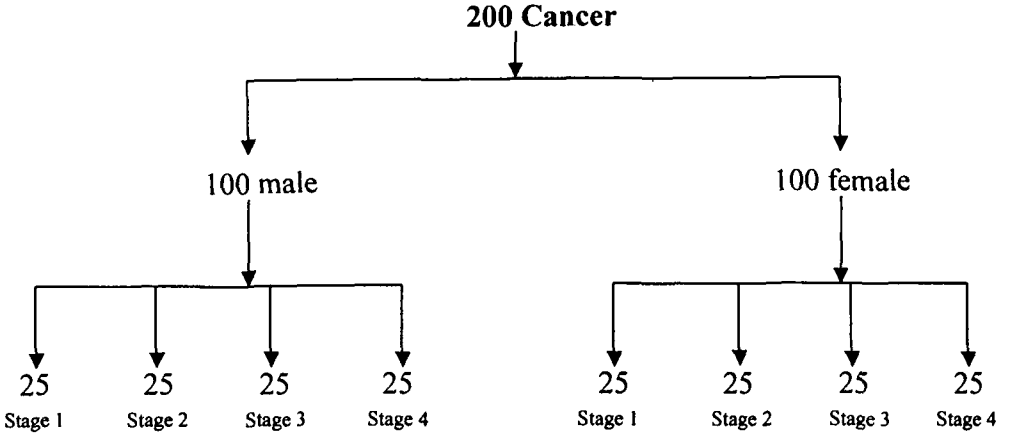
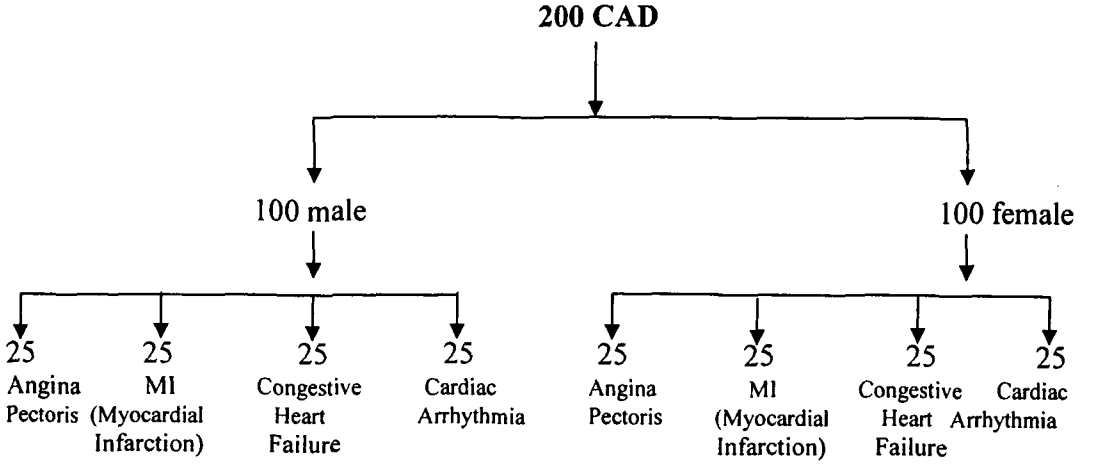


Fig.3.2.2. Break-up of Subjects



3.3. Tools

To measure and understand human behavior psychological tests are developed and used. It is a matter of fact that there is not a single tool or psychological instrument which may tell about all aspects of behavior because of complex and varying psycho-emotional attributes of personality. Hence, there is a need for developing psychological instrument for each specific purpose. Questionnaires since long have been most convenient tools in psychological researches. In the present research work, the following tools were used for the purpose of obtaining the information about psychological factors, those playing important roles in the live's of cancer and CAD patients.

3.3.1. Affectometer-2

Affectometer-2 was developed by Kamman and Flett (1983). It consisted of 40 items: 20 positive and 20 negative, half represented as sentences and half as adjectives. Respondents rate how well the items apply to themselves on a five point Likert scale ranging from 'not at all' to 'all of the time'. Responses to negative items are summed and subtracted from the sum of positive items, reflecting the scale's underlying theoretical principle that mental health status is determined by the degree to which positive feelings and attributes outweigh negative ones. Test-retest reliability of the scale was found to be 0.80 while a coefficient of alpha of 0.95 is reported with a median item total correlation of 0.57.

3.3.2. The Adult Hope Scale

The Adult Hope Scale developed by Snyder et al. (1991) was used to measure the disposition of hope among cancer and coronary artery disease patients. The scale consisted of eight hope items plus four fillers. The subjects have to rate their responses on

a 4-point Likert scale or 8-point Likert scale on a continuum of definitely false (1) to definitely true (4 or 8). There are two domains, the agency and the pathways. Four (4) items reflect the agency, the overall successful sense of goal related determination of the past, the present and the future 4 items reflect the pathways, people's cognitive appraisals regarding their ability to generate ways of overcoming obstacles related to the goals and ways of achieving the goals. The remaining 4 items are fillers. Hope is calculated by taking the sum of the 4 pathways and 4 agency items. The 4 filler items are not used for scoring. Total possible score is 48. For the total scale Cronbach's alpha's ranged from .74 to .84. For the agency subscale, alpha = 0.71 – 0.76, for the pathway subscale, alpha =0.63 – 0.8. The Hope Scale possesses acceptable internal consistency and temporal stability.

3.3.3 Health Care Scale

Health behavior was measured by Health Care Scale developed by Adhami and Kureshi (1992). The scale comprised of 30 items, 15 were representative of health consciousness and 15 of health carelessness. Each item has five response categories, ranging from 'strongly agree' to 'strongly disagree' with intermediate columns as 'moderately agree' to 'strongly disagree'. The listed items were placed in random order to avoid any guessing on the part of the subjects.

The scoring of items was done as follows:

The items which were representative of health consciousness would get a score of '5' if answered "strongly agree" and "1" if marked "strongly disagree". Other intermediate responses would get scores accordingly. The items reflecting attitudes of carelessness towards health would be scored in reverse order i.e., "strongly disagree"

would get a score of '5' and "strongly agree" a score of '1'. The maximum score that an individual can get on this questionnaire is 150 and the maximum is 30.

3.3.4. Personal Data sheet

Personal data sheet includes information related to patient's name, age, gender, type of disease, duration of illness, address and contact no. as stated in Appendix.

3.5. Procedure

Prior to data collection, the investigator explained the purpose of the study to the subjects. The investigator established rapport with the respondents (patients) and assured them that their responses would be kept strictly confidential and would be utilized for the research purpose only. After establishing rapport with the respondents, the data were collected individually according to their convenience. Three Scales along with the personal data sheet were administered to cancer and coronary artery disease (CAD) patients. The data collection period took almost one year. It was very crucial and painful especially with Cancer patients.

3.6. Data Analysis

Data were analyzed by using statistical package for Social Sciences (SPSS) version 16.0. In order to answer research questions set in chapter one, the present investigator used 2x2 and 2x4 factorial designs Analysis of Variance (two-way ANOVA). Scheffe test was used for examining mean differences between cancer patients of different stages and types of CAD patients.

CHAPTER FOUR

Results and Discussion

Chapter Four

RESULTS AND DISCUSSION

In order to study the levels of Happiness, Hope and Health Behavior among Coronary Artery Disease (CAD) and Cancer patients, certain research objectives and research questions were set in the first chapter. Data were analyzed by ANOVA to give the answers of research questions satisfactorily. The results obtained are given below.

The abbreviations which are used in the following tables for the different types of Coronary Artery Disease (CAD) are:

CAD 1: ***Angina Pectoris***

CAD 2: ***Myocardial Infarction***

CAD 3: ***Congestive Heart Failure***

CAD 4: ***Cardiac Arrhythmia***

4.1. Happiness

Table1: Analysis of Variance using Happiness as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	1246.090	1	1246.090	2.560	.110
Disease	6512.490	1	6512.490	13.380*	.000
Gender * Disease	625.000	1	625.000	1.288	.258
Error	192745.980	396	486.732		
Total	507824.00	400			
Corrected Total	201129.560	399			

* $p<0.01$

As can be seen from Table 1 significant F-ratios were not found for the gender of patients and the interaction effects ($F=1.284$, $p>0.05$) on scores of happiness ($F=2.560$, $p>0.05$). However, significant F-ratio was found for the types of disease ($F=13.380$, $p<0.01$) on *happiness*.

Table 2: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	-34.74	19.600	100
	CAD	-24.17	22.891	100
	Total	-29.46	21.906	200
Female	Cancer	-28.71	22.527	100
	CAD	-23.14	23.050	100
	Total	-25.92	22.904	200
Total	Cancer	-31.72	21.277	200
	CAD	-23.66	22.919	200
	Total	-27.69	22.452	400

Table 3: Analysis of Variance using Happiness as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	1818.045	1	1818.045	5.141**	.024
Disease	19020.175	3	6340.058	17.927*	.000
Gender * Disease	1349.975	3	449.992	1.272	.285
Error	67901.680	192	353.655		
Total	291385.000	200			
Corrected Total	90089.875	199			

*p<.01, **p<.05

It can be seen from Table 3 significant F-ratios were found for gender of patients ($F=5.141$, $p<0.05$) and degrees of cancer ($F=17.927$, $p<0.01$) on happiness. However, significant F-ratio was not found for interaction effect ($F=1.272$, $p>0.05$).

Table 4: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	-35.85	10.229	25
	Stage 2	-24.52	24.975	25
	Stage 3	-25.60	15.570	25
	Stage 4	-53.00	8.337	25
	Total	-34.74	19.600	100
Female	Stage 1	-23.28	27.346	25
	Stage 2	-24.72	15.662	25
	Stage 3	-23.36	23.482	25
	Stage 4	-43.48	15.634	25
	Total	-28.71	22.527	100
Total	Stage 1	-29.56	21.395	50
	Stage 2	-24.62	20.632	50
	Stage 3	-24.48	19.751	50
	Stage 4	-48.24	13.300	50
	Total	-31.72	21.277	200

Table 5: Analysis of Variance using Happiness as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	53.045	1	53.045	.103	.749
Disease	2574.655	3	858.218	1.659	.177
Gender * Disease	2557.815	3	852.605	1.648	.180
Error	99341.680	192	517.405		
Total	216439.000	200			
Corrected Total	104527.195	199			

As can be seen from Table 5 that significant F-ratios were not found for gender of patients (F=.103, P>0.05), types of CAD (F=1.659, p>0.05) and their interaction effect (F=1.648, p>0.05) on *happiness.*

Table 6: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	-20.28	14.918	25
	CAD 2	-23.60	19.451	25
	CAD 3	-24.24	27.268	25
	CAD 4	-28.56	27.944	25
	Total	-24.17	22.891	100
Female	CAD 1	-27.24	20.761	25
	CAD 2	-11.96	22.473	25
	CAD 3	-28.04	24.422	25
	CAD 4	-25.32	21.943	25
	Total	-23.14	23.050	100
Total	CAD 1	-23.76	18.234	50
	CAD 2	-17.78	21.616	50
	CAD 3	-26.14	25.690	50
	CAD 4	-26.94	24.919	50
	Total I	-23.66	22.919	200

Table 7: Multiple Comparison of means (Scheffe) for cancer patients on Happiness

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	-4.94	3.808	.641	-15.68	5.80
	Stage 3	-5.08	3.808	.620	-15.82	5.66
	Stage 4	18.68	3.808	.000	7.94	29.42
Stage 2	Stage 1	4.94	3.808	.641	-5.80	15.68
	Sage 3	-0.14	3.808	1.000	-10.88	10.60
	Stage 4	23.62	3.808	.000	12.88	34.36
Stage 3	Stage 1	5.08	3.808	.620	-5.66	15.82
	Stage 2	0.14	3.808	1.000	-10.60	10.88
	Stage 4	23.76	3.808	.000	13.02	34.50
Stage 4	Stage 1	-18.68	3.808	.000	-29.42	-7.94
	Stage 2	-23.62	3.808	.000	-34.36	-12.88
	Stage 3	-23.76	3.808	.000	-34.50	-13.02

Table 8: Multiple Comparison of means (Scheffe) for CAD patients on Happiness

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	-5.98	4.561	.633	-18.84	6.88
	CAD3	2.38	4.561	.965	-10.48	15.24
	CAD4	3.18	4.561	.922	-9.68	16.04
CAD2	CAD1	5.98	4.561	.633	-6.88	18.84
	CAD3	8.36	4.561	.342	-4.50	21.22
	CAD4	9.16	4.561	.261	-3.70	22.02
CAD3	CAD1	-2.38	4.561	.965	-15.24	10.48
	CAD2	-8.36	4.561	.342	-21.22	4.50
	CAD4	.80	4.561	.999	-12.06	13.66
CAD4	CAD1	-3.18	4.561	.922	-16.04	9.68
	CAD2	-9.16	4.561	.261	-22.02	3.70
	CAD3	-.80	4.561	.999	-13.66	12.06

Results presented in Tables 3 and 4 revealed that significant F-ratios were found for gender and stages of cancer on happiness. The level of happiness was found to be the lowest among stage 4 cancer patients in both males and females. It shows as the disease

progresses, the level of happiness decreases. Cancer patients may be experiencing more pain in the last stage of cancer as compared to earlier stages that is why they are less happy. The findings of the present study can be indirectly supported by a study of Pettingale and colleagues (1987). They found that female cancer patients were more anxious and depressed than their male counterparts. The degree of post traumatic growth is lower in CAD patients as compared to cancer patients (Yvonne, 2010). From the findings we cannot draw any inference as to whether illness causes happiness or vice-versa.

Male as well as female CAD patients, irrespective of the types of CAD, perceived almost the same level of happiness. This may be due to the results of the physical problems they have been exposed to such as pain, fear of death. Secondly, the new surgery is the last curing method for them. That is why hardly they bother about their level of happiness. Happiness is one of the major psychological dimensions which are more or less served as the moderator with this disease. Happy people are more likely to accept their situation and less likely to use escapism (Waldstein et al., 2000).

Table 7 post hoc test (Scheffe) showed that there were significant differences between stage 1 and stage 4, stage 2 and stage 4, and stage 3 and stage 4 cancer patients on happiness. Low level of happiness was found to be associated with stage 4 cancer patients. The findings suggest that quality of life is significantly affected in the areas of functioning during the last stage because it is a life threatening disease.

Table 8 showed that significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on Happiness. This finding suggests that the level of

happiness plays an equally important role among angina pectoris, myocardial infarction, congestive heart failure, and cardiac arrhythmia patients. Perhaps the patients cope with the challenges of the disease relatively in a more pleasing manner. They believe that happiness can manage their illness.

4.2. Hope

Table 9: Analysis of Variance using Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	1102.240	1	1102.240	8.845**	.003
Disease	8892.490	1	8892.490	71.356*	.000
Gender * Disease	1962.490	1	1962.490	15.748	.000
Error	49349.780	396	124.621		
Total	432188.000	400			
Corrected Total	61307.000	399			

*p<0.01, **p<.05

Analysis of variance (ANOVA) was used to examine the influence of gender (male and female), types of disease (CAD and cancer) and their interaction effects on overall scores of Hope. As can be seen from Table 9 significant F-ratios were found for gender of patients ($F=8.845$, $p<0.05$), effects of types of disease ($F=71.356$, $p<0.01$) and their interaction effects ($F=15.748$, $p<0.01$) on *hope*.

Table 10: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	25.18	13.726	100
	CAD	39.04	8.712	100
	Total	32.11	13.407	200
Female	Cancer	26.29	11.334	100
	CAD	31.29	10.282	100
	Total	28.79	10.081	200
Total	Cancer	25.73	12.568	200
	CAD	35.17	10.269	200
	Total	30.45	12.396	400

Table 11: Analysis of Variance using Agency Thought factor of Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	203.062	1	203.062	4.234**	.040
Disease	2772.023	1	2772.023	57.803*	.000
Gender * Disease	322.203	1	322.203	6.719*	.010
Error	18990.710	396	47.956		
Total	129577.000	400			
Corrected Total	22287.998	399			

*p<0.01, ** p<0.05

It can be seen from Table 11 that significant F-ratios were found for gender of patients (F=4.238, p<0.05), types of disease (F=57.803, p<0.01) and their interaction effects (F=6.719, p<0.01) on *agency thought.*

Table 12: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	13.56	8.175	100
	CAD	20.62	6.116	100
	Total	17.09	8.024	200
Female	Cancer	13.93	6.605	100
	CAD	17.40	6.630	100
	Total	15.67	6.826	200
Total	Cancer	13.74	7.415	200
	CAD	19.01	7.564	200
	Total	16.38	7.474	400

Table 13: Analysis of Variance using Pathways factor of Hope as the Dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	359.102	1	359.102	9.351*	.002
Disease	1734.723	1	1734.723	45.174*	.000
Gender * Disease	694.323	1	694.323	18.081*	.000
Error	15206.750	396	38.401		
Total	97209.000	400			
Corrected Total	17994.898	399			

* $p<0.01$,

As can be seen from Table 13 significant F-ratios were found for gender of patients ($F=9.351$, $p<0.01$), types of diseases ($F=45.174$, $p<0.01$) and their interaction effects ($F=18.081$, $p<0.01$) on *pathways*.

Table 14: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	11.62	7.084	100
	CAD	18.42	5.420	100
	Total	15.02	7.155	200
Female	Cancer	12.36	6.405	100
	CAD	13.89	5.747	100
	Total	13.13	6.118	200
Total	Cancer	11.99	6.746	200
	CAD	16.15	6.017	200
	Total	14.07	6.716	400

Table 15: Analysis of Variance using Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	61.605	1	61.605	1.455	.229
Cancer	17830.815	3	5943.605	140.385*	.000
Gender * Cancer	5409.655	3	1803.218	42.591*	.000
Error	8128.880	192	42.338		
Total	163889.000	200			
Corrected Total	31430.955	199			

*p<.01

As can be seen from Table 15, significant F-ratio was not found for gender of patients on hope (F=.229, P>0.05). The main effect of degrees of cancer (F=140.385, P<0.01) and the interaction effect between gender and cancer (F=42.591, P<0.01) were found significant on *hope*.

Table16: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	43.44	9.803	25
	Stage 2	28.72	5.311	25
	Stage 3	17.20	4.555	25
	Stage 4	11.36	2.548	25
	Total	25.18	13.726	100
Female	Stage 1	27.24	5.652	25
	Stage 2	39.44	9.531	25
	Stage 3	24.52	7.113	25
	Stage 4	13.96	3.713	25
	Total	26.29	11.334	100
Total	Stage 1	35.34	11.387	50
	Stage 2	34.08	9.361	50
	Stage 3	20.86	6.972	50
	Stage 4	12.66	3.414	50
	Total	25.73	12.568	200

Table17: Analysis of Variance using Agency Thoughts factor of Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	6.845	1	6.845	.309	.579
Disease	5063.695	3	1687.898	76.091*	.000
Gender * Disease	1612.415	3	537.472	24.230*	.000
Error	4259.040	192	22.183		
Total	48727.000	200			
Corrected Total	10941.995	199			

*p<.01

Table 17 showed that significant F-ratio was not found for gender of patients (F=.309, p>0.05). The significant F-ratios were found for degrees of cancer (F=76.091, p<0.01) and the interaction effect (F=24.230, p>0.05) on *agency thoughts.*

Table 18: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	23.76	6.990	25
	Stage 2	15.20	4.682	25
	Stage 3	9.52	3.242	25
	Stage 4	5.76	1.690	25
	Total	13.56	8.175	100
Female	Stage 1	14.52	3.776	25
	Stage 2	20.36	6.879	25
	Stage 3	13.32	4.661	25
	Stage 4	7.52	3.164	25
	Total	13.93	6.605	100
Total	Stage 1	19.14	7.259	50
	Stage 2	17.78	6.380	50
	Stage 3	11.42	4.413	50
	Stage 4	6.64	2.663	50
	Total	13.74	7.415	200

Table 19: Analysis of Variance using Pathways factor of Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	27.380	1	27.380	1.321	.252
Disease	3922.180	3	1307.393	63.099*	.000
Gender * Disease	1128.260	3	376.087	18.151*	.000
Error	3978.160	192	20.720		
Total	47808.000	200			
Corrected Total	9055.980	199			

*p<.01

It can be seen from Table 19 that significant F-ratio was not found for gender of patients (F=1.321, p>0.05). Whereas significant F-ratios were found for degrees of cancer (F=63.099, P<0.01) and the interaction effect (F=18.151, p<0.01) on *pathways*.

Table 20: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	19.68	6.969	25
	Stage 2	13.52	4.398	25
	Stage 3	7.68	3.301	25
	Stage 4	5.60	1.683	25
	Total	11.62	7.084	100
Female	Stage 1	12.72	4.560	25
	Stage 2	19.08	6.337	25
	Stage 3	11.20	4.082	25
	Stage 4	6.44	21.551	25
	Total	12.36	6.405	100
Total	Stage 1	16.20	6.806	50
	Stage 2	16.30	6.085	50
	Stage 3	9.44	4.082	50
	Stage 4	6.02	2.181	50
	Total	11.99	6.746	200

Table 21: Analysis of Variance using Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	3003.125	1	3003.125	34.384*	.000
Disease	643.575	3	214.525	2.456	.064
Gender * Disease	567.575	3	189.085	2.165	.094
Error	16769.600	192	87.342		
Total	268299.000	200			
Corrected Total	20983.555	199			

*p<.01

Analysis of variance was used to examine the influence of gender (male and female), types of CAD (Angina Pectoris, Myocardial Infarction, Congestive Heart Failure, and Cardiac Arrhythmias) and the interaction between them on hope. As can be seen from Table 21, significant F-ratio was found for gender of patients on hope ($F=34.384$, $p<0.01$). Whereas significant F-ratios were not found for types of CAD ($F=2.456$, $p>0.05$) and the interaction effect ($F=2.165$, $p>0.05$) on *hope*.

Table 22: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	39.40	7.141	25
	CAD 2	34.80	11.314	25
	CAD 3	41.32	6.969	25
	CAD 4	40.64	7.653	25
	Total	39.04	8.712	100
Female	CAD 1	34.64	11.254	25
	CAD 2	30.40	10.966	25
	CAD 3	32.00	9.772	25
	CAD 4	28.12	8.378	25
	Total	31.29	10.282	100
Total	CAD 1	37.02	9.633	50
	CAD 2	32.60	11.249	50
	CAD 3	36.66	9.629	50
	CAD 4	34.38	10.152	50
	Total I	35.17	10.269	200

Table 23: Analysis of Variance using Agency Thoughts factor of Hope as the dependent variable

Sources	Sum of Square	Df	Mean Scores	F	Sig.
Gender	518.420	1	518.420	13.394*	.000
Disease	298.420	3	99.473	2.570**	.056
Gender * Disease	325.540	3	108.513	2.804**	.041
Error	7431.600	192	38.706		
Total	80850.000	200			
Corrected Total	8573.980	199			

*p<.01, **p<.05

Significant F-ratios were found for gender of patients (F=13.394, p<0.01), types of CAD (F=2.570, p<0.05) and their interaction effect (F=2.804=, p<0.05) on *agency thoughts.*

Table 24: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	20.88	5.525	25
	CAD 2	17.56	6.690	25
	CAD 3	22.72	5.609	25
	CAD 4	21.32	5.713	25
	Total	20.62	6.116	100
Female	CAD 1	19.92	6.800	25
	CAD 2	17.16	5.713	25
	CAD 3	17.16	6.681	25
	CAD 4	15.36	6.837	25
	Total	17.40	6.630	100
Total	CAD 1	20.40	6.151	50
	CAD 2	17.36	6.160	50
	CAD 3	19.94	6.720	50
	CAD 4	18.34	6.924	50
	Total 1	19.01	6.564	200

Table 25: Analysis of Variance using Pathways factor of Hope as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	10216.045	1	1026.045	32.529*	.000
Disease	53.295	3	17.765	.563	.640
Gender * Disease	68.775	3	22.925	.727	.537
Error	6056.080	192	31.542		
Total	59401.000	200			
Corrected Total	7204.195	199			

*p<.01

From Table 25 it can be inferred that significant F-ratio was found for gender of patients on pathways (F=32.529, p<0.01). Whereas F-ratios were not found for types of CAD (F=.563, p>0.05) and the interaction effect (F=.727, p>0.05) on *pathways*.

Table 26: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	18.28	4.037	25
	CAD 2	17.48	6.118	25
	CAD 3	18.60	4.770	25
	CAD 4	19.32	6.549	25
	Total	18.42	5.420	100
Female	CAD 1	14.68	5.596	25
	CAD 2	13.24	6.359	25
	CAD 3	14.84	5.406	25
	CAD 4	12.80	5.657	25
	Total	13.89	5.747	100
Total	CAD 1	16.48	5.160	50
	CAD 2	15.36	6.536	50
	CAD 3	16.72	5.391	50
	CAD 4	16.06	6.894	50
	Total 1	16.15	6.017	200

Table 27: Multiple Comparison of means (Scheffe) for cancer patients on Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	1.26	1.666	.903	-3.44	5.96
	Stage 3	14.48	1.666	.000	9.78	19.18
	Stage 4	22.68	1.666	.000	17.98	27.38
Stage 2	Stage 1	-1.26	1.666	.903	-5.96	3.44
	Sage 3	13.22	1.666	.000	8.52	17.92
	Stage 4	21.42	1.666	.000	16.72	26.12
Stage 3	Stage 1	-14.48	1.666	.000	-19.18	-9.78
	Stage 2	-13.22	1.666	.000	-17.92	-8.52
	Stage 4	8.20	1.666	.000	3.50	12.90
Stage 4	Stage 1	-22.68	1.666	.000	-27.38	-17.98
	Stage 2	-21.42	1.666	.000	-26.12	-16.72
	Stage 3	-8.20	1.666	.000	-12.90	-3.50

Table 28: Multiple Comparison of means (Scheffe) for cancer patients on Agency Thought factor of Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	1.36	1.095	.673	-1.73	4.45
	Stage 3	7.72	1.095	.000	4.63	10.81
	Stage 4	12.50	1.095	.000	9.41	15.59
Stage 2	Stage 1	-1.36	1.095	.673	-4.45	1.73
	Sage 3	6.36	1.095	.000	3.27	9.45
	Stage 4	11.14	1.095	.000	8.05	14.23
Stage 3	Stage 1	-7.72	1.095	.000	-1.81	-4.63
	Stage 2	-6.36	1.095	.000	-9.45	-3.27
	Stage 4	4.78	1.095	.000	1.69	7.87
Stage 4	Stage 1	-12.50	1.095	.000	-15.59	-9.41
	Stage 2	-11.14	1.095	.000	-14.23	-8.05
	Stage 3	-4.78	1.095	.000	-7.87	-1.69

Table 29: Multiple Comparison of means (Scheffe) for cancer patients on Pathways factor of Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	-.10	1.024	1.000	-2.99	2.79
	Stage 3	6.76	1.024	.000	3.87	9.65
	Stage 4	10.18	1.024	.000	7.29	13.07
Stage 2	Stage 1	.10	1.024	1.000	-2.79	2.99
	Sage 3	6.86	1.024	.000	3.97	9.75
	Stage 4	10.28	1.024	.000	7.39	13.17
Stage 3	Stage 1	-6.76	1.024	.000	-9.65	-3.87
	Stage 2	-6.86	1.024	.000	-9.75	-3.97
	Stage 4	3.42	1.024	.012	.53	6.31
Stage 4	Stage 1	-10.18	1.024	.000	-13.07	-7.29
	Stage 2	-10.28	1.024	.000	-13.17	-7.39
	Stage 3	-3.42	1.024	.012	-6.31	-.53

Significant F-ratios were found for gender of patients, types of disease and the interaction between them on overall scores of hope. Female cancer patients had higher levels of hope as compared to their male counterparts. Male CAD patients as compared to female CAD patients had higher levels of hope. This finding implies that hope plays an important role in male CAD patients in maintaining wellness. The result suggests that females may be having more feeling of hopelessness. Female patients understand that the heart ailment will always be associated with them for the whole life. Moreover, they depend on the medicine; therefore do not accept hope as a kind of coping strategy. Male patients tend to adopt a number of coping strategies to deal with their illness, including hope as the positive aspect to cope with their illness. Life is unstable and unpredictable. Hope insulate to the CAD patients from the bad effects associated with the disease.

Results presented in Tables 9, 11 and 13 revealed that significant F-ratios were found for gender of patients, types of disease and the interaction between them on hope

and both the factors of hope (i.e. agency thoughts and pathways). The CAD patients scored higher than the cancer patients on both factors of hope (i.e. agency thoughts and pathways). Since the cancer patients experienced more emotional distress, therefore they have feeling of hopelessness about self and future. CAD patients had higher levels of hope as compared to cancer patients. The present findings can be corroborated with the findings of Ballard et al. (1997) and Ratajska (2008).

The level of hope in male CAD patients with congestive heart failure is higher than the level of hope in male CAD patients with angina pectoris, myocardial infarction, and cardiac arrhythmia (cf. Table 22). Ratajska (2008) reported that the level of hope with congestive heart failure is much higher than the level in cardiological patients without heart failure; healthy person come is the middle.

Results presented in table 15 revealed that there were significant effects of type of disease (i.e. cancer) and interaction between gender and stages of cancer on hope. Stage 1 patients had the highest levels of hope. Significance differences also existed between the different stages of cancer on the factors of hope (i.e. agency thoughts and pathways). Stage 1 patients scored highest on both the factors of hope whereas stage 4 patients had the lowest scores on both these factors. Hope plays a vital role in patients with different stages of cancer. Stage 1 cancer patients as compared to cancer patients of other stages had the highest level of hope because they tend to generate multiple pathways to goal achievement (i.e. seeking treatment). Moreover, they believe "that they can initiate and sustain the pathways to goal achievement" (Snyder, 2000).

The findings of the present study can be corroborated with the results of a study carried out by Irena-Heszen et al. (1999) who reported that cancer patients manifest high

anxiety and relatively high hope in the initial phase, then a decrease in anxiety and increase in hope later. Felder and Barbara (2004) also found that the level of hope was high and was positively related to coping in patients with cancer, regardless of gender, age, marital status, education, or site of malignancy.

Tables 27, 28 and 29 Scheffe test showed that significant differences were between stage 1 and stage 3, stage 1 and stage 4, and stage 2 and stage 3, stage 2 and 4, and stage 3 and 4 cancer patients on *hope*, and *agency thought* and *pathways* factors of hope.

Table 30: Multiple Comparison of means (Scheffe) for CAD patients on Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	4.42	2.037	.198	-1.44	10.17
	CAD3	.36	2.037	.999	-5.39	6.11
	CAD4	2.64	2.037	.642	-3.11	8.39
CAD2	CAD1	-4.42	2.037	.198	-10.15	1.33
	CAD3	-4.06	2.037	.268	-9.81	1.69
	CAD4	-1.78	2.037	.858	-7.53	3.97
CAD3	CAD1	-.36	2.037	.999	-6.11	5.39
	CAD2	4.06	2.037	.268	-1.69	9.81
	CAD4	2.28	2.037	.741	-3.47	8.03
CAD4	CAD1	-2.64	2.037	.642	-8.39	3.11
	CAD2	1.78	2.037	.858	-3.97	7.53
	CAD3	-2.28	2.037	.741	-8.03	3.47

Table 31: Multiple Comparison of means (Scheffe) for CAD patients on Agency Thought factor of Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	3.04	1.300	.144	-.62	6.70
	CAD3	.46	1.300	.989	-3.20	4.12
	CAD4	2.06	1.300	.475	-1.60	5.72
CAD2	CAD1	-3.04	1.300	.144	-6.70	.62
	CAD3	-2.58	1.300	.271	-6.24	1.08
	CAD4	-.98	1.300	.903	-4.64	2.68
CAD3	CAD1	-.46	1.300	.989	-4.12	3.20
	CAD2	2.58	1.300	.271	-1.08	6.24
	CAD4	1.60	1.300	.679	-2.06	5.26
CAD4	CAD1	-2.06	1.300	.475	-5.72	1.60
	CAD2	.98	1.300	.903	-2.68	4.64
	CAD3	-1.60	1.300	.679	-5.26	2.06

Table 32: Multiple Comparison of means (Scheffe) for CAD patients on Pathways factor of Hope

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	1.12	1.208	.835	-2.29	4.53
	CAD3	-.24	1.208	.998	-3.65	3.17
	CAD4	.42	1.208	.989	-2.99	3.83
CAD2	CAD1	-1.12	1.208	.835	-4.53	2.29
	CAD3	-1.36	1.208	.737	-4.77	2.05
	CAD4	-.70	1.208	.953	-4.11	2.71
CAD3	CAD1	.24	1.208	.998	-3.17	3.65
	CAD2	1.36	1.208	.737	-2.05	4.77
	CAD4	.66	1.208	.960	-2.75	4.07
CAD4	CAD1	-.42	1.208	.989	-3.83	2.99
	CAD2	.70	1.208	.953	-2.71	4.11
	CAD3	-.66	1.208	.960	-4.07	2.75

As can be seen from Tables 30, 31 and 32 that significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on *hope,* and *agency thought and pathways* factors of hope. Irrespective of the types of CAD patients they learn to accept their capacities and find alternative ways to accomplish the health-related goals. Since they have the same level of hope that is why they are able to cope with the challenges of the disease.

4.3. Health Behaviour

Table 33: Analysis of Variance using Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	81.000	1	81.000	.219	.640
Disease	1310.440	1	1310.440	3.546	.060
Gender * Disease	8519.290	1	8519.290	23.051*	.000
Error	146357.020	396			
Total	3161290.000	400			
Corrected Total	156267.750	399			

* $p<0.01$

As can be seen from Table 33 significant main effects for gender of patients ($F=.219$, $p>0.05$) and types of disease ($F=3.546$, $p>0.05$) were not found on health behaviour. However, significant interaction effect was found between gender and types of disease ($F=23.051$, $p<0.01$) on *health behavior.*

Table 34: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	79.80	20.972	100
	CAD	92.65	17.623	100
	Total	86.23	20.366	200
Female	Cancer	89.93	18.004	100
	CAD	84.32	20.096	100
	Total	87.13	19.237	200
Total	Cancer	84.87	20.145	200
	CAD	88.49	19.309	200
	Total	86.67	19.790	400

Table 35: Analysis of Variance using Health Consciousness factor of Health Behaviour as the dependent variable.

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	37.210	1	37.210	.216	.642
Disease	3124.810	1	3124.810	18.151*	.000
Gender * Disease	800.890	1	800.890	4.652**	.032
Error	68172.280	396	172.152		
Total	985880.000	400			
Corrected Total	72135.190	399			

*P<.01, **p<.05

Table 35 showed that significant F-ratio was not found for gender of patients on health consciousness (F=.216, P>0.05). The significant F-ratios were found for types of disease (F=18.151, P<0.01) and the interaction effect between gender and disease (F=4.652, P<0.05) on *health consciousness*.

Table 36: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	43.28	13.375	100
	CAD	51.70	12.586	100
	Total	47.49	13.624	200
Female	Cancer	46.72	13.643	100
	CAD	49.48	12.852	100
	Total	48.10	13.292	200
Total	Cancer	45.00	13.585	200
	CAD	50.59	12.737	200
	Total	47.80	13.446	400

Table 37: Analysis of Variance using Health Carelessness factor of Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	8.410	1	8.410	.052	.820
Disease	388.090	1	388.090	2.390	.123
Gender * Disease	4096.000	1	4096.000	25.227*	.000
Error	64295.740	396	162.363		
Total	673450.000	400			
Corrected Total	68788.240	399			

*p<0.01, **

As can be seen from Table 37 significant main effects were found for gender of patients (F=0.52, p>0.05) and the types of disease (F=2.390, p>0.05) on health carelessness. However, significant F-ratio was found for interaction between gender and types of disease (F=25.227, p<0.01) on *health carelessness.*

Table 38: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Cancer	36.52	12.931	100
	CAD	40.95	12.174	100
	Total	38.73	12.722	200
Female	Cancer	43.21	13.012	100
	CAD	34.84	12.834	100
	Total	39.02	13.566	200
Total	Cancer	39.87	13.365	200
	CAD	37.90	12.847	200
	Total	38.88	13.130	400

Table 39: Analysis of Variance using Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	5130.845	1	5130.845	14.500*	.000
Disease	5331.455	1	1777.152	5.022*	.002
Gender * Disease	2357.615	3	785.872	2.22	.087
Error	67941.440	192			
Total	1521175.000	200			
Corrected Total	80761.355	199			

*p<.01

From the results presented in Table 39 it can be inferred that significant F-ratios were found for gender of patients (F=14.500, p<0.01) and degrees of cancer (F=5.022, p<0.01) on health behaviour. Whereas the interaction effect (F=2.221, p>0.05) was not found significant on *health behaviour.*

Table 40: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	76.36	21.785	25
	Stage 2	69.04	23.375	25
	Stage 3	86.96	17.341	25
	Stage 4	86.84	15.957	25
	Total	79.80	20.972	100
Female	Stage 1	82.40	20.938	25
	Stage 2	91.04	14.252	25
	Stage 3	92.60	19.483	25
	Stage 4	93.68	15.280	25
	Total	89.93	18.044	100
Total	Stage 1	79.38	21.366	50
	Stage 2	80.04	22.149	50
	Stage 3	89.78	18.475	50
	Stage 4	90.26	15.843	50
	Total	84.87	20.145	200

Table 41: Analysis of Variance using Health Consciousness factor of Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	591.680	1	591.680	3.516	.062
Disease	2188.240	3	729.413	4.334*	.006
Gender * Disease	1635.440	3	545.147	3.239**	.023
Error	32312.640	192	168.295		
Total	441728.000	200			
Corrected Total	36728.00	199			

*p<.01, **p<.05

Table 41 showed that F-ratio was not found significant for gender of patients on health consciousness (F=3.516, p>0.05). However, the main effect for degrees of cancer (F=4.334, p<0.01) and the interaction effect (F=3.239, p<0.01) were found to be significant on *health consciousness.*

Table 42: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	41.32	13.428	25
	Stage 2	36.56	12.868	25
	Stage 3	48.56	13.295	25
	Stage 4	46.68	11.097	25
	Total	43.28	13.375	100
Female	Stage 1	39.92	14.454	25
	Stage 2	49.40	12.172	25
	Stage 3	47.64	11.489	25
	Stage 4	49.92	14.543	25
	Total	46.72	13.643	100
Total	Stage 1	40.62	13.825	50
	Stage 2	42.98	13.991	50
	Stage 3	48.10	12.306	50
	Stage 4	48.30	12.907	50
	Total	45.00	13.585	200

Table 43: Analysis of Variance using Health Carelessness factor of Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	2237.805	1	2237.805	13.312*	.000
Disease	838.615	3	279.538	1.663	.176
Gender * Disease	202.855	3	67.618	.402	.752
Error	32276.080	192	168.105		
Total	353399.00	200			
Corrected Total	35555.355	199			

*p<.01

As can be seen from Table 43 significant F-ratio was found for gender of patients on health carelessness (F=13.312, P<0.01). F-ratios were not found to be significant for stages of cancer (F=1.663, p>0.05) and the interaction effect (F=.402, p>0.05) on *health carelessness.*

Table 44: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	Stage 1	35.04	12.171	25
	Stage 2	32.48	13.333	25
	Stage 3	38.40	10.075	25
	Stage 4	40.16	15.021	25
	Total	36.52	12.931	100
Female	Stage 1	42.48	14.541	25
	Stage 2	41.64	12.463	25
	Stage 3	44.96	13.773	25
	Stage 4	43.76	11.634	25
	Total	43.21	13.012	100
Total	Stage 1	38.76	13.792	50
	Stage 2	37.06	13.585	50
	Stage 3	41.68	12.394	50
	Stage 4	41.96	13.421	50
	Total	39.87	13.367	200

Table 45: Analysis of Variance using Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	3469.445	1	3469.445	10.056*	.002
Disease	3867.255	3	1289.085	3.736*	.012
Gender * Disease	609.015	3	203.005	.588	.623
Error	66250.240	192	345.053		
Total	1640115.000	200			
Corrected Total	74195.955	199			

*p<.01

From the results presented in Table 45 it can be inferred that significant F-ratios were found for gender of patients (F=10.056, p<0.01) and types of CAD (F=3.736, p<0.01) on health behaviour. The F-ratio was not found significant for interaction effect (F=.588, p>0.05) on *health behaviour.*

Table 46: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	90.72	16.928	25
	CAD 2	83.84	16.795	25
	CAD 3	96.56	16.335	25
	CAD 4	99.48	17.215	25
	Total	92.65	17.623	100
Female	CAD 1	82.84	21.156	25
	CAD 2	80.96	19.733	25
	CAD 3	84.44	19.797	25
	CAD 4	89.04	19.995	25
	Total	84.32	20.096	100
Total	CAD 1	86.78	19.375	50
	CAD 2	82.40	18.193	50
	CAD 3	90.50	18.977	50
	CAD 4	94.26	19.203	50
	Total 1	88.49	19.309	200

Table 47: Analysis of Variance using Health Consciousness factor of Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	246.420	1	246.420	1.562	.213
Disease	1378.620	3	459.540	2.913**	.036
Gender * Disease	365.500	3	121.833	.772	.511
Error	30291.840	192	157.770		
Total	544152.000	200			
Corrected Total	32282.380	199			

**p<.05

Table 47 showed that F-ratios were not found significant for gender of patients (F=1.562, p>0.05) and the interaction effect (F=.772, p>0.05) on health consciousness. The F-ratio was found significant for types of CAD (F=2.913, p<0.05) on *health consciousness*.

Table 48: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	48.00	14.660	25
	CAD 2	48.44	15.392	25
	CAD 3	53.08	10.287	25
	CAD 4	57.28	6.004	25
	Total	51.70	12.586	100
Female	CAD 1	49.60	11.525	25
	CAD 2	47.48	11.479	25
	CAD 3	48.60	14.874	25
	CAD 4	52.24	13.513	25
	Total	49.48	12.852	100
Total	CAD 1	48.80	13.076	50
	CAD 2	47.96	13.447	50
	CAD 3	50.84	12.858	50
	CAD 4	54.76	10.657	50
	Total	50.59	12.737	200

Table 49: Analysis of Variance using Health Carelessness factor of Health Behaviour as the dependent variable

Sources	Sum of Square	df	Mean Scores	F	Sig.
Gender	1866.605	1	1866.605	12.067*	.001
Disease	881.775	3	293.925	1.900	.131
Gender * Disease	396.975	3	132.325	.855	.465
Error	29699.440	192	154.685		
Total	320051.000	200			
Corrected Total	32844.795	199			

*p<.01

As can be seen from Table 49 that significant F-ratio was found for gender of patients on health carelessness (F=12.067, p<0.01). Whereas significant F-ratios were not found for types of CAD (F=1.900, p>0.05) and the interaction effect (F=.855, p>0.05) on *health carelessness.*

Table 50: Mean, Standard Deviation and Sample Size

Gender	Types of Disease	Mean	Std. Deviation	N
Male	CAD 1	42.72	12.002	25
	CAD 2	35.40	9.055	25
	CAD 3	43.48	10.844	25
	CAD 4	42.20	14.969	25
	Total	40.95	12.174	100
Female	CAD 1	33.24	12.610	25
	CAD 2	33.48	13.531	25
	CAD 3	35.84	13.431	25
	CAD 4	36.80	12.135	25
	Total	34.84	12.834	100
Total	CAD 1	37.98	13.091	50
	CAD 2	34.44	11.436	50
	CAD 3	39.66	12.682	50
	CAD 4	39.50	13.759	50
	Total	37.90	12.847	200

Table 51: Multiple Comparison of means (Scheffe) for cancer patients on Health Behaviour

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	-.66	3.924	.999	-11.72	10.40
	Stage 3	-10.40	3.924	.074	-21.46	.66
	Stage 4	-10.88	3.924	.056	-21.94	.18
Stage 2	Stage 1	.66	3.924	.999	-10.40	11.72
	Sage 3	-9.74	3.924	.108	-20.80	1.32
	Stage 4	-10.22	3.924	.083	-21.28	.84
Stage 3	Stage 1	10.40	3.924	.074	-.66	21.46
	Stage 2	9.74	3.924	.108	-1.32	20.80
	Stage 4	-.48	3.924	1.000	-11.54	10.58
Stage 4	Stage 1	10.88	3.924	.056	-.18	21.94
	Stage 2	10.22	3.924	.083	-.84	21.28
	Stage 3	.46	3.924	1.000	-10.58	11.54

Table 52: Multiple Comparison of means (Scheffe) for Cancer patients on Health Consciousness factor of Health Behaviour

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	-2.36	2.655	.852	-9.85	5.13
	Stage 3	-7.48	2.655	.050	-14.97	.01
	Stage 4	-7.68	2.655	.042	-15.17	-.19
Stage 2	Stage 1	2.36	2.655	.852	-5.13	9.85
	Sage 3	-5.12	2.655	.297	-12.61	2.37
	Stage 4	-5.32	2.655	.263	-12.81	2.17
Stage 3	Stage 1	7.48	2.655	.050	-.01	14.97
	Stage 2	5.12	2.655	.297	-2.37	12.61
	Stage 4	-.20	2.655	1.000	-7.69	7.29
Stage 4	Stage 1	7.68	2.655	.042	.19	15.17
	Stage 2	5.32	2.655	.263	-2.17	12.81
	Stage 3	.20	2.655	1.000	.729	7.69

Table 53: Multiple Comparison of means (Scheffe) for cancer patients on Health Carelessness factor of Health Behaviour

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
Stage 1	Stage 2	1.70	2.662	.938	-5.81	9.21
	Stage 3	-2.92	2.662	.752	-10.43	4.59
	Stage 4	-3.20	2.662	.695	-10.71	4.31
Stage 2	Stage 1	-1.70	2.662	.938	-9.21	5.81
	Sage 3	-4.62	2.662	.392	-12.13	2.89
	Stage 4	-4.90	2.662	.338	-12.41	2.61
Stage 3	*Stage 1*	*2.92*	*2.662*	*.752*	*-4.56*	*10.43*
	Stage 2	4.62	2.662	.392	-2.89	12.13
	Stage 4	-.28	2.662	1.000	-7.79	7.23
Stage 4	Stage 1	3.20	2.662	.695	-4.31	10.71
	Stage 2	4.90	2.662	.338	-2.61	12.41
	Stage 3	.28	2.662	1.000	-7.23	7.79

Table 54: Multiple Comparison of means (Scheffe) for CAD patients on Health Behaviour

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	4.38	3.789	.721	-6.30	15.06
	CAD3	-3.72	3.789	.810	-14.40	6.96
	CAD4	-7.48	3.789	.276	18.16	3.20
CAD2	CAD1	-4.38	3.789	.721	-15.06	6.30
	CAD3	-8.10	3.789	.210	-18.78	2.58
	CAD4	-11.86	3.789	.022	-22.54	-1.18
CAD3	CAD1	3.72	3.789	.810	-6.96	14.40
	CAD2	8.10	3.789	.210	-2.58	18.78
	CAD4	-3.76	3.789	.805	-14.44	6.92
CAD4	CAD1	7.48	3.789	.276	-3.20	18.16
	CAD2	11.86	3.789	.022	1.18	22.54
	CAD3	3.76	3.789	.805	-6.92	14.44

Table 55: Multiple Comparison of means (Scheffe) for CAD patients on Health Consciousness factor of Health Behaviour.

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	.84	2.511	.990	-6.24	7.92
	CAD3	-2.04	2.511	.882	-9.12	5.04
	CAD4	-5.96	2.511	.135	-13.04	1.12
CAD2	CAD1	-.84	2.511	.990	-7.92	6.24
	CAD3	-2.88	2.511	.726	-9.96	4.20
	CAD4	-6.80	2.511	.065	-13.88	.28
CAD3	CAD1	2.04	2.511	.882	-5.04	9.12
	CAD2	2.88	2.511	.726	-4.20	9.96
	CAD4	-3.92	2.511	.489	-11.00	3.16
CAD4	CAD1	5.96	2.511	.135	-1.12	13.04
	CAD2	6.80	2.511	.065	-.28	13.88
	CAD3	3.92	2.511	.489	-3.16	11.00

Table 56: Multiple Comparison of means (Scheffe) for CAD patients on Health Carelessness factor of Health Behaviour.

		Mean differences	Std. Error	Sig.	95% confidence Interval	
					Lower bound	Upper bound
CAD1	CAD2	3.54	2.554	.590	-3.66	10.74
	CAD3	-1.68	2.554	.933	-8.88	5.52
	CAD4	-1.52	2.554	.949	-8.72	5.68
CAD2	CAD1	-3.54	2.554	.590	-10.74	3.66
	CAD3	-5.22	2.554	.246	-12.42	1.98
	CAD4	-5.06	2.554	.273	-12.26	2.14
CAD3	CAD1	1.68	2.554	.933	-5.52	8.88
	CAD2	5.22	2.554	.246	-1.98	12.42
	CAD4	.16	2.554	1.000	-7.04	7.36
CAD4	CAD1	1.52	2.554	.949	-5.68	8.72
	CAD2	5.06	2.554	.273	-2.14	12.26
	CAD3	-.16	2.554	1.000	-7.36	7.04

The mean scores of CAD patients as compared to cancer patients were found higher on health behavior. The finding suggests that CAD patients perceived themselves healthier or sound in health as compared to their counterparts. CAD patients are more health conscious, whereas cancer patients are more health careless (cf. Table 34, 36 and 38).

Female CAD patients scored lower than male CAD patients (cf. Table 46). This finding can be supported by the findings of an earlier study (Nord & Brorsson, 1995).

Table 51 showed that significant differences were not found between stage 1 and 2, stage 1 and stage 3, stage 2 and 3, stage 2 and stage 4, stage 3 and 4 cancer patients on *health behavior*. Significant difference was found between the cancer patients of stage 1 and stage 4. These findings suggest that the effects of physical symptoms of physical deterioration in stage 4 cancer patients are more severe as compared to the cancer patients of stage 1 cancer patients.

Table 52 showed that significant differences was found between stage 1 and stage 4 cancer patients on *consciousness* factor of health behaviour. It can be concluded that as the disease progresses the patients becomes more and more conscious about his health. Cancer patients of stage 4 may be giving meaning to their life and preparing themselves to accept the inevitability of death. Male as well as female cancer patients of stage 4 were more conscious about their health as compared to the cancer patients of other stages.

Table 53 showed that significant differences were not found between stage 1 and 2, stage 1 and stage 3, stage 1 and stage 4, and stage 2 and 3, stage 2 and stage 4, stage 3 and 4 cancer patients on *carelessness* factor of health behavior. Dying is the developmental task for everyone no matter whatever the stage of cancer.

Tables 54, 55 and 56 of Scheffe test showed that significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on health behavior, *consciousness* and *carelessness* factors of health behavior. The results suggest that angina pectoris, myocardial infarction, congestive heart failure, and cardiac arrhythmia have the same attitude towards the maintenance of health behaviour. Consciousness and carelessness aspects of health behaviour in CAD patients need not necessarily restrict functioning levels in major life areas. All types of CAD patients are equally conscious in their physical and mental activities.

CHAPTER FIVE

Conclusion and Future Research Suggestions

Chapter Five

CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

5.1. Conclusion

The main findings of the present study have led to certain conclusions:

- Significant F-ratio was found for the types of disease ($F=13.380$, $p<0.01$) on happiness.
- Significant F-ratios were found for gender of patients ($F=5.141$, $p<0.05$) and degrees of cancer ($F=17.927$, $p<0.01$) on happiness.
- Scheffe test showed that there were significant differences between stage 1 and stage 4, stage 2 and stage 4, and stage 3 and stage 4 cancer patients on happiness.
- Significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on Happiness.
- Significant F-ratio were found for gender of patients ($F=8.845$, $p<0.05$), effects of types of disease ($F=71.356$, $p<0.01$) and their interaction effects ($F=15.748$, $p<0.01$) on hope.
- Significant F-ratios were found for gender of patients ($F=4.238$, $p<0.05$), types of disease ($F=57.803$, $p<0.01$) and their interaction effects ($F=6.719$, $p<0.01$) on agency thought.
- Significant F-ratios were found for gender of patients ($F=9.351$, $p<0.01$), types of diseases ($F=45.174$, $p<0.01$) and their interaction effects ($F=18.081$, $p<0.01$) on pathways.
- Significant F-ratio was found for gender of patients on hope ($F=34.384$, $p<0.01$).

- The main effect of degrees of cancer ($F=140.385$, $P<0.01$) and the interaction effect between gender and cancer ($F=42.591$, $P<0.01$) were found significant on hope.
- Significant F-ratios were found for degrees of cancer ($F=76.091$, $p<0.01$) and the interaction effect ($F=24.230$, $p>0.05$) on agency thoughts.
- Significant F-ratios were found for degrees of cancer ($F=63.099$, $P<0.01$) and the interaction effect ($F=18.151$, $p<0.01$) on pathways.
- Significant F-ratios were found for gender of patients ($F=13.394$, $p<0.01$), types of CAD ($F=2.570$, $p<0.05$) and their interaction effect ($F=2.804=$, $p<0.05$) on agency thoughts.
- Significant F-ratio was found for gender of patients ($F=32.529$, $p<0.01$) on pathways.
- Scheffe test showed that significant differences were between stage 1 and stage 3, stage 1 and stage 4, and stage 2 and stage 3, stage 2 and 4, and stage 3 and 4 cancer patients on *hope*, and *agency thought* and *pathways* factors of hope.
- Significant interaction effect was found between gender and types of disease ($F=23.051$, $p<0.01$) on health behavior.
- Significant F-ratios were found for types of disease ($F=18.151$, $P<0.01$) and the interaction effect between gender and disease ($F=4.652$, $P<0.05$) on health consciousness.
- Significant F-ratio was found for interaction between gender and types of disease ($F=25.227$, $p<0.01$) on health carelessness.

- Significant F-ratios were found for gender of patients ($F=14.500$, $p<0.01$) and degrees of cancer ($F=5.022$, $p<0.01$) on health behaviour.
- The main effect for degrees of cancer ($F=4.334$, $p<0.01$) and the interaction effect ($F=3.239$, $p<0.01$) were found to be significant on health consciousness.
- Significant F-ratio was found for gender of patients on health carelessness ($F=13.312$, $P<0.01$).
- - Significant F-ratios were found for gender of patients ($F=10.056$, $p<0.01$) and types of CAD ($F=3.736$, $p<0.01$) on health behaviour.
- F-ratio was found significant for types of CAD ($F=2.913$, $p<0.05$) on health consciousness.
- Significant F-ratio was found for gender of patients ($F=12.067$, $p<0.01$) on health carelessness.

- Scheffe test showed that significant differences were not found between CAD 1 and CAD 2, CAD 1 and CAD 3, CAD 1 and CAD 4, and CAD 2 and CAD 3, CAD 2 and CAD 4, CAD 3 and CAD 4 patients on health behavior, *consciousness* and *carelessness* factors of health behavior.

5.2. FUTURE RESEARCH SUGESSIONS

- Many more types of Coronary Artery Disease (CAD) to be taken into consideration. For example: Congenital Heart Diseases, Valvular Heart Diseases and Adult Congenital Diseases
- Duration of illness and family history of patients should also be taken into account.
- An attempt could be made to examine the impact of socio-economic and marital status of the cancer and CAD patients on the levels of Hope, Happiness nd Health Care Behaviours.
- Research is needed to focus on social support and stress as an independent variable.
- One important feature which needs to be considered in the prospective studies is the positive psychological states. The concept of meaning in life and optimism should also be studied in such patients.

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APPENDICES

APPENDIX-A

AFFECTOMETER 2

Instructions:

This is a 40-item self-report scale. Read each item carefully. Using the scale shown below, please select the number that describes your feelings and write that number on the line provided against each item.

S. No.	Items	Not at all	Occasionally	Some of the time	Often	All of the time
		1	2	3	4	5
1.	My life is on the right track.					
2.	I wish I could change some part of my life.					
3.	My future looks good.					
4.	I feel as though the best years of my life are over.					
5.	I like myself.					
6.	I feel there must be something wrong with me.					
7.	I can handle any problems that come up.					
8.	I feel like a failure.					
9.	I feel loved and trusted.					
10.	I seem to be left alone when I don't want to be.					
11.	I feel close to people around me.					
12.	I have lost interest in other people and don't care about them.					
13.	I feel I can do whatever I want to.					
14.	My life seems stuck in a rut.					
15.	I have energy to spare.					
16.	I can't be bothered doing anything.					

17.	I smile and laugh a lot.					
18.	Nothing seems very much fun anymore.					
19.	I think clearly and creatively.					
20.	My thoughts go around in useless circles.					
21.	Satisfied					
22.	Optimistic					
23.	Useful					
24.	Confident					
25.	Understood					
26.	Loving					
27.	Free-and-easy					
28.	Enthusiastic					
29.	Good natured					
30.	Clear-headed					
31.	Discontented					
32.	Hopeless					
33.	Insignificant					
34.	Helpless					
35.	Lonely					
36.	Withdrawn					
37.	Tense					
38.	Depressed					
39.	Impatient					
40.	Confused					

APPENDIX-B

THE ADULT HOPE SCALE

Instructions:

Read each item carefully. Using the scale shown below, please select the number that best describes you and put that number in the blank provided. There are "no correct' or "incorrect" answers. Record your response to each item based on the 8 choices below.

1 = Definitely False
2 = Mostly False
3 = Somewhat False
4 = Slightly False
5 = Slightly True
6 = Somewhat True
7 = Mostly True
8 = Definitely True

___1. I can think of many ways to get out of a jam.

____ 2. I energetically pursue my goals.

____ 3. I feel tired most of the time.

____ 4. There are lots of ways around any problem.

____ 5. I am easily downed in an argument.

____ 6. I can think of many ways to get the things in life that are important to me.

____ 7. I worry about my health.

____ 8. Even when others get discouraged, I know I can find a way to solve the problem.

____ 9. My past experiences have prepared me well for my future.

____ 10. I've been pretty successful in life.

____ 11. I usually find myself worrying about something.

____ 12. I meet the goals that I set for myself.

APPENDIX-C

HEALTH CARE SCALE

Instructions:

Below are given certain statements reflecting attitudes about health to each of which you are requested to respond by putting a check mark (√) on the category (against each statement) which best represents the intensity of your attitude.

S. No.	Items	Strongly agree	Moderately agree	Can't say	Moderately disagree	Strongly disagree
		1	2	3	4	5
1.	I am generally very careful about my health.					
2.	It's not wise to ignore even a minor disease.					
3.	There is nothing like perfect health.					
4.	Diseases are the alms of health.					
5.	I have a sense of well being even when I am not well.					
6.	Taking extra care of one's health is in itself a disease.					
7.	One should ever be watchful of changes taking place is one's body (that may be the symptoms of an ensuing disease)					
8.	Ever-the-healthiest person cannot be without some kind of disease.					
9.	There is no point worrying too much about one's ill health as it is not of his doing.					
10.	One has to fall ill as long as he lives.					
11.	It is in man's power never to fall ill.					

12.	The very thought of a major disease frightens me.					
13.	The tip of good health is to be least careful about it.					
14.	I pity those who take liberty from their health.					
15.	When ill, I generally avoid to go to a doctor and do it only on other's insistence.					
16.	I believe in seeking the best medicine when ill.					
17.	I rush to consult a Physician on slight indication of a common cold.					
18.	I am not very particular about following the instructions of a doctor.					
19.	I never take a serious view of my disease.					
20.	I never take chance even with a minor complaint.					
21.	I generally do not make fuss of my illness.					
22.	My bed side table is full of tonics, appetizers and nutrients.					
23.	I am a regular reader of health magazine.					
24.	I do not believe in periodic medical check-ups.					
25.	I am too choosy about food in terms of its medium of cooking and its nutritive properties.					
26.	I cannot do without having a minor walk.					
27.	I believe that illness takes its own course and recovery is its logical final.					
28.	I would opt to stay hungry rather than go to a hotel with unhygienic conditions.					
29.	I believe in going for food of my liking even if it doesn't suit my health.					
30.	I believe that disease is heaven sent, so why to worry.					

APPENDIX-D

PERSONAL DATA SHEET

Patient's Name_____

Age_____ Sex _____ M ( ) / F ( )

Name of the disease_____

Address_____

_____

Tel. /Mobile No. _____